TECHNOLOGY AT WORK:
AN INVESTIGATION OF TECHNOLOGY AS A MEDIATOR OF ORGANIZATIONAL PROCESSES IN THE HUMAN SERVICES AND THE IMPLICATIONS FOR CONSULTANCY PRACTICE

NICK WAGGETT

A thesis submitted in partial fulfilment of the requirements of the University of East London for the degree of Professional Doctorate in Consultation and the Organisation

September 2017
(Amended February 2018)

Abstract

Increasing technology use in the organization of human services is seen as essential to achieving greater efficiency and effectiveness. However, the promises may not be realised if technology generates processes and structures that are misaligned to the primary task of the service. How and why this occurs, and the role of unconscious and emotional factors, is insufficiently understood. There is limited guidance on how to work with technology in complex services where anxiety, and defences against it, may be a significant factor.

Drawing on systems-psychodynamics, actor-network and process theory, this research addresses these gaps through a methodology in which human and technology are seen to operate symmetrically in the ongoing formation of organizations. The research studies child welfare and mental health services as an 'extreme case' for technology implementation as the site of significant transformation and powerful human dynamics. Data are gathered via a visual method known as the social photo-matrix in which participants, all practitioners in these services, generate and respond to images on the theme of 'technology at work'.

It is found that technology reduces an organization's capacity for processing emotion which leaves staff with increased anxiety and fewer ways to modify it. Technology mediates organizational processes to make them fit the models of measurement and efficiency by which it operates, and transforms the reality of services both on the ground and in the minds of the people within them. It is concluded that these processes make staff less available to provide compassionate, empathic care for service users, and generate organizational processes that may not be aligned to the task of providing human services. The implication for leaders and consultants is that it is only possible to realise the promises of technology if it is engaged with thoughtfully, in an environment where anxieties can be managed.

Key words: technology, organization consultancy, human services, systems-psychodynamics

Table of Contents

Table of Tables

Table of Figures

Acknowledgements

Many people helped along the way in enabling me to reach a place where I was able to commence the Professional Doctorate, and others have supported and encouraged me to the point of completing it. This begins with my family, especially my wife Mandy who has been there for me and made sacrifices with me.

People who have supported my professional practice in consultation include Dr Kay Trainor and colleagues on the Masters programme, and Dr Judith Bell and colleagues on the Doctorate programme at the Tavistock Centre. In particular I would like to acknowledge the influence on my practice and thinking of Francesca Cardona who has been my consultation tutor for several years. In the preliminary stages of designing the research project I had helpful conversations with Professor Nancy Harding at the University of Bradford and Professors Nik Brown and Robin Wooffitt at the University of York. Dr Simon Western's work has been influential and he provided encouragement to build upon it. I would like to thank the colleagues who participated in the trial focus group that I undertook and the people who volunteered for the research groups and who provided the invaluable data on which this work is built. I would also like to acknowledge the work of Sue McCreath at NSCAP whose efficient running of the organization has been a great help and support.

Finally my two supervisors Dr Janet Shaw and Dr Simon Tucker have provided support, knowledge, containment and challenge in just the right amounts, at the right times, and I am extremely grateful to them. They got me this far but I have to take responsibility for the end result.

Dedication

I would like to dedicate this thesis to my father, Alan Waggett, who died whilst I was working on it. He was an engineer and Squadron Leader in the Royal Air Force and would have been very interested to see the outcomes of the research.

Chapter 1. Introductions and Initial Explorations

It's the wrong trousers, Gromit,
And they've gone wrong![1]
(The Wrong Trousers, 1993)

1.1 Summary

The purpose of this first chapter is to establish the context out of which the research project emerged, and in which it is situated, and to provide a guide to the thesis that follows. This is a practice-focused thesis developed to aid organizational consultation in relation to technology use in the human services, but it is also the product of one particular researcher's choices and pre-occupations. The opening chapter explores how context, practice and researcher came together to identify a particular research topic and a particular way of approaching it. The chapter begins with reflections on the researcher as an individual with a specific relationship to the topic and describes how the research focus and question evolved. It then outlines how the question was addressed through the chosen research design. Finally, the structure of the thesis is presented along with a brief synopsis of the following chapters.

1.2 Organizational Challenges

I spoke recently to the Chief Information Officer (CIO) of an NHS trust about plans to introduce a new patient information system and the difficulties of getting staff to use new technologies which he described as being about 'culture change'. I said, "Don't take this the wrong way but you are an expert on IT, not an expert on changing culture", to which he wholeheartedly agreed. This is, however, the task he appears to have been given by the trust; to change organizational culture and practice – the ways of doing things – through the implementation of new technology. The introduction of the technology itself is thought to be sufficient to drive change, and where it fails this is attributed to an unwillingness or inability on the part of the staff to adapt – to change *their* culture. This would seem to be setting up an impossible task if the organization relies on technology to make the desired changes *on its behalf*; and possibly a

[1] Before the wrong trousers go wrong Wallace says to Gromit, "They're techno trousers, ex-NASA, fantastic for walkies!".

highly risky one because of the unpredictable ways in which technology and staff will interact to generate new forms of organizing. If we ask technology to do the work of organizational change for us we give it significant agency that we may not have the means to predict, much less to control. It would be deterministic to believe that introducing a technology into a complex system like an NHS Trust would result in linear, predictable and entirely positive change.

As an organizational consultant I would claim to have some understanding of change processes and of working with complex systems in the highly charged environment of health and social care. My knowledge of health information systems and related technology is partial and limited to the perspective of the user. What then can I offer the CIO struggling with IT implementation and recalcitrant staff unable or unwilling to adapt to a new reality? Where might my knowledge of social systems come together with his or her knowledge of technical systems? Technology will increasingly become a powerful force in organizational change and service delivery. Kurt Lewin's 'dynamic approach rule' highlights the importance of discovering multiple *forces* at work in any situation (Neumann, 2015). This research is, in part, aimed at discovering what kind of force technology is and how it affects the human aspects of the organization.

All change has positive and negative effects. The role of the leader, manager or consultant is to maximise the former and mitigate the latter. My thesis is that technology is an especially powerful agent of change with particular properties and effects on organizational processes and human relations. This is neither a determinist view, that a given technology will lead to predictable organizational change, nor an entirely humanistic position, that technology is merely a product of social interaction. Instead, this research is informed by a view that new and emerging forms of technology will become increasingly entangled with human relations, especially processes by which we *organize* ourselves and the world in which we live.

1.3 Locating Myself in the Research

My background is as an NHS manager with 25 years' experience starting in primary care through health authority planning roles and onto workforce

development and training. I developed myself via an MA in Health Service Studies which took a critical stance to healthcare management. In my final role in the Health Authority I had a number of difficult experiences as a result of change processes and what I saw as rigid and uncaring management, including examples of putting money before patient care. In 2002 I made a significant career shift to project manage the establishment of the Northern School of Child and Adolescent Psychotherapy (NSCAP) which is the NHS psychoanalytic psychotherapy centre for the north of England. I have continued in the role of Operational Director of NSCAP. In that role I have contact with front-line clinicians and managers, students from a range of backgrounds across the public sector, and also at a national level with policy makers and professional bodies. Over the past nine years I have undertaken training in consulting to organizations at the Tavistock Centre and engaged in consultancy assignments, primarily as part of NSCAP's clinical and organizational service (Waggett, 2012). More recently I have taught consultancy practice and research methods on a number of courses at NSCAP and the Tavistock Centre. These roles have brought me into contact with wider parts of the health and social care sectors and beyond.

Being close to Child and Adolescent Psychotherapy, which as a small profession has struggled to maintain its place in the 'modernised' NHS, has given me insight into processes that are taking place across the public sector that are undermining the relational fabric of care including: an attack on specialisms and a move towards generic workers able to perform a limited range of competencies; reliance on manualized and 'evidence-based' practice ahead of professional judgement; the imposition of targets, use of outcome and performance measures and the ever present threat of budget cuts and competitive tendering. There is a growing sense that many aspects of practitioners' ability to provide a professional, humane service are being eroded by the managerialist 'tick-box' culture in many public services. These experiences clearly colour my view of service developments in the NHS and elsewhere but I have sought to explore the potential benefits of technology use and why, for example, the speed and scope of technological developments elsewhere in society are not occurring in the human services.

1.4 How the Research Project Developed

1.4.1 Influences from theory and practice

I became interested in the role of technology in health and social care organizations as a result of observing processes of change which brought with them both benefits and challenges. In particular, there appeared to be problems where technologies were used in rigid or concrete ways that seemed to limit or preclude thinking, but also to reduce compassion and the quality of relationships with service users. It was as if technologies were disrupting thoughtful engagement, including empathic responses, in work with patients and clients. Relationships that were previously thought of as being purely human to human were now being mediated[2] through technology which was having a material effect on these relationships. A starting point for the research was therefore to capture this process of mediation and to provide the missing explanation for how it was happening. Significantly, from a practice perspective, organizational consultancy literature appeared to continue to focus primarily on the human-human relationship and to not sufficiently account for this new force in the 'dynamic field' (Lewin, 1946).

An early example of this phenomenon was the Liverpool Care Pathway for End-of-Life Care which was abolished following a review (Department of Health, 2013) that found, "staff slavishly following a process without care or compassion" (Neuberger, 2013). I considered the pathway or protocol to be a form of technology in this context and wondered to what extent technology, and its role as a mediator, might have been a contributory factor in the wide-ranging failings identified in the Mid-Staffordshire NHS Foundation Trust (Francis, 2013). I was challenged how, as organization consultants, we might respond. As I have gained a greater understanding of technology, and developed the perspective of the researcher, I have increasingly tried to hold a position of seeing both 'the problems and promises' of technology, to use Berg's (1997) phrase, in order to promote a consultative stance that can ensure the benefits of new technology are gained whilst mitigating any negative effects.

[2] Definition of mediate. 1: occupying a middle position; 2a : acting through an intervening agency; b : exhibiting indirect causation, connection, or relation. www.merriam-webster.com/dictionary/mediate In statistics a mediating variable is one that accounts for or alters another relationship.

I then encountered a number of publications and perspectives from outside the established field of systems-psychodynamics that I saw as potentially augmenting and addressing shortcomings in relation to its engagement with technology. These included several papers by Wanda Orlikowski exploring ideas of sociomateriality and the 'constitutive entanglement of the social and the material' (Orlikowski, 2010) and papers from with the actor-network theory (ANT) approach (e.g. Law and Singleton, 2013) that reframe what we think of as the *social* world as not being purely human. These and other texts introduced the idea that technologies and material artefacts may have agency – they can make things happen – and actively constitute the organizational processes of health and care services. If this is the case, organizational consultancy practice must develop to recognise what has been described as the 'post-social turn' (Humphries and Smith, 2014) in which the influence of non-human actors is given equal consideration to that of people. Key texts in systems-psychodynamics can be criticized for specifically dismissing the role of the material world in favour of a focus on internal, or inter-personal, psychological processes (see Chapter 2).

Some psychoanalytic and systems-psychodynamics texts do recognise the link to these wider bodies of work that are developing our understanding of technology in practice. Simon Western's (2009) paper '*Cyborgs and entanglements: locating ourselves in a strange land*' explicitly combines ANT and object-relations psychoanalysis and argues that, "How non-animate objects and psychic objects interact in complex networks to create the social world is a key question of our times." (Western, 2009, p.10). To some extent this recalls the project of the early socio-technical researchers and consultants at the Tavistock Institute of Human Relations. An important influence on this thesis was a revisiting of Trist and Bamforth's (1951) paper on '*the longwall method of coal getting*' in which they showed how the introduction of new technology could disrupt the social and psychological aspects of organizations on which efficiency and productivity depended as much as they did on the technical aspects.

Finally, a major influence on my theoretical thinking was Robert M. Young's '*Mental Space*' (Young, 1994), an overlooked text that brings together

psychoanalysis and process theory. Young connects AN Whitehead's (1929) idea of 'the fallacy of misplaced concreteness' to Jaques (1955) and Menzies Lyth's (1960) theory of 'social defences against anxiety'. There has recently been a resurgence of interest in Whitehead's philosophy within organization studies and the development of a process theory of organization (Hernes, 2014) which emphasises the emergent nature of seemingly permanent structures, and shifts the focus onto *organizing* as a process rather than organizations as a thing. If we take the view that organizations such as the NHS or social services are always *becoming*, rather than *being*, then it is crucial to understand the role of technology in their ongoing making and re-making.

1.4.2 Developing the research question

From the influences described above, questions emerged that form the basis for a research project that could add to thinking *about* (theory) and working *with* (practice) technology in human services organizations[3]. The central research question concerns the ways in which technology is transforming the *reality* of human services organizations, and the understanding of what that reality is for those working in, using, or observing it. To what extent, and how, is technology changing what services are, what they do and how they do it? 'Reality' here means both the lived experience of services and how they are understood and conceptualised; that is, what sense is made of the experience. In turn, the perception of the reality of services influences how they are acted upon, organized and practiced. The act of organizing human services is an ongoing interplay between concrete, on-the-ground, experience and an abstract conceptualisation of what that experience *means*; that is, what a service is, does, and how it should do it.

Specifically in relation to this interplay between concrete experience and its abstract conceptualisation, my hypothesis is that when *something* (i.e. anything human or natural, material or processual) is introduced into processes of organizing it will influence or alter both aspects of reality; it will operate in both

[3] In this thesis I am using the term 'human services' in the broadest sense to capture all organizations concerned with human welfare such as physical and mental health, social care, education and justice. These may be provided by a wide range of organizations in the public sector and by charities, voluntary bodies and on both non-profit and for-profit bases. The empirical research is based on practitioners working with children who have social, emotional and behavioural difficulties, and services for these children cut across all sectors of the human services.

the concrete and abstract realms and mediate between them. In so doing the *something* may change reality in ways that may not be predictable or understood. Any changes may be attributed to a different cause such as 'poor management' or 'a lack of compassion'. In this research the particular *something* that has entered the process of organizing is technology, and the research aim is to discover how, and in what ways, technology may be mediating the reality of the human services. It is evident that anyone wishing to research change processes in the human services, or manage or provide consultation to those processes, would need to understand the mediating role of technology – what technology is, what it does, how it does it and who it does it with. This is especially so if the view is taken that a mediator such as technology may alter the reality of those services in ways we may not fully appreciate, or indeed desire. The research therefore seeks to contribute to this understanding by focusing on a specific question:

> In what ways does technology act as a mediator of organizational processes in the human services, and what are the implications for consultancy practice?

1.4.3 Initial explorations

In the process of developing the research question I had a lot of conversations with colleagues about the proposal and each sparked a great deal of interest, ideas and connections. I also held a trial focus group with clinicians to test out the research question to check that it was meaningful to them. It was clear that I was touching on an area of practice that was relevant and important to many people. These initial explorations were also an opportunity to think about the conceptual framework that I was working with and what this implied in terms of methodology and research design. My feeling was that there was something limiting about the use of the standard research interview, whether individual or group, in its focus on words alone. It felt inadequate in capturing human interaction with the physical world and in capturing the embodied, non-verbal, aspects of our engagement with technology. This view was later confirmed in reading Sandelowski's (2002) paper on '*re-embodying qualitative inquiry*'. I therefore become increasingly interested in the use of visual research methods and the idea that materiality may be a significant factor in how we organize

services. As described in Chapter 3, this led to the use of the social photo-matrix (Sievers, 2007) as the research method within an epistemology of giving equal weight to the role of technology, and its material artefacts, as to that of humans in organizational processes. The emphasis on the visual dimension informs the thesis as a whole and visual metaphors are used throughout to bring the thinking into focus.

1.5 The Definition and Meaning of Technology

The Oxford online dictionary[4] defines technology as, "The application of scientific knowledge for practical purposes, especially in industry" and also as, "Machinery and equipment developed from the application of scientific knowledge" and, "The branch of knowledge dealing with engineering or applied sciences". In this definition, technology is both a form of knowledge that is applied for practical purpose and the physical products of that application. Similarly, Wikipedia[5] uses the definition, "Technology can be the knowledge of techniques, processes, and the like, or it can be embedded in machines to allow for operation without detailed knowledge of their workings."

To locate these definitions I used the technology of the Google search engine via my laptop which has an operating system and various kinds of software including a browser linked to the internet via my wireless router. It also has the hardware of the screen, keyboard and processor. I was wearing my glasses, and clothes, in my house with the heating and light on. Each is a different type of technology and there are probably many others involved including some that are not visible, such as the computer code and language that convert my typing into letters in the browser, and also many that are at a great distance such as the power station providing the electricity to power the laptop. When we think about technology it may initially seem 'obvious' what it is but these definitions, and my example, begin to give a clue to the complexity of the subject. In fact, there are many different views and perspectives on how we might understand the nature and meaning of technology which are discussed in the literature review in Chapter 2.

[4] https://en.oxforddictionaries.com/definition/technology
[5] https://en.wikipedia.org/wiki/Technology

It turns out that the meaning of technology is contested and has shifted over time. Orlikowski says that, “there is little agreement on the definition and measurement of technology” (1992, p. 398). Whereas early research studies assumed technology to be an objective, external force with deterministic impacts on organizational properties such as structure, later researchers focused on the human aspect of technology, seeing it as the outcome of strategic choice and social action. In studies such as Huber (1990), who posits, “A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making”, technology is seen primarily as *hardware*, discrete objects including equipment, machines and instruments that are viewed as distinct and separate from humans and organisations, but are hypothesised to directly impact human behaviour and organisational characteristics. This perspective reifies technology and ignores how technology is bound up with historical and cultural influences. Researchers and practitioners working in the socio-technical tradition, such as Trist and Bamforth (1951) or Eason (2014), would reject this approach as technologically deterministic and providing insufficient focus on the human aspects of organisations and technology use in practice.

A more human-centered perspective focuses on how humans make sense of and interact with technology in various circumstances. Technology is understood to be different based on the different meanings assigned to it and the different ways in which people engage with it. It situates the production and use of technology in particular sociocultural and historical contexts. This view is taken further by the social-construction of technology (SCOT) approach which argues that human action itself shapes technology. The constructionist view is that technology is not stable, that it is changed and reconstituted through its use in the organizational context. Because SCOT recognizes the interdependence of social and technical elements technologies are never ‘complete’ (Jackson, Poole, and Kuhn, 2001), it is an emergent process. Key texts in the SCOT tradition include Bijker, Hughes and Pinch’s (1987) edited volume “The social construction of technological systems” and Bijker’s (1995) studies of “bicycles, Bakelites, and bulbs”.

This thesis picks up and develops an alternative view of technology that is neither techno-centric or human-centric, on the basis that neither is well equipped to address the complexities of current information technology driven, connected and networked organisations. This position, of the 'constitutive entanglement' of human-technology, is defined as follows:

> "Such an alternative view asserts that materiality is integral to organizing, positing that the social and the material are constitutively entangled in everyday life. A position of constitutive entanglement does not privilege either humans or technology (in one-way interactions), nor does it link them through a form of mutual reciprocation (in two-way interactions). Instead, the social and the material are considered to be inextricably related — there is no social that is not also material, and no material that is not also social." (Orlikowski, 2007, p. 1437).

The idea of constitutive entanglement takes socio-technical and systems-psychodynamics theories forward in viewing one system in which formal and informal, material and human, are *in and of each other* and subject to the same rational and irrational, personal and impersonal forces:

> "Look at the material world in this way. It isn't simply that we eat, find shelter in our houses, and produce objects with machines. It is also that almost all of our interactions with other people are mediated through objects of one kind or another." (Law, 2003, p.380).

The particular focus of this thesis is on technology-use in the human services and especially child welfare and mental health services. One reason for being interested in this area is that the technologies operating in these services may not be immediately obvious or visible and therefore their impact on organisational processes, and the delivery of services, insufficiently recognised or theorised. My initial interest was in formulating objects such as clinical pathways, protocols, treatment manuals and outcome measures as being technologies that were being applied to services in new ways. By thinking of them as being technologies we may have additional ways to theorise and work with them. During the course of the research I became increasingly interested in technology as the material artefacts to which people relate in organizations and which become an integral part of organizational processes. This was led by the research participants who provided images of computers, laptops, phones

etc. Therefore the specific technologies that this thesis interrogates are those that emerge from the data, which includes pathways and protocols, but also the computers and other physical objects that populate these services.

This is not surprising as information and communication technologies are becoming an increasingly important part of services such as the NHS and social care. In Chapter 2 there is a discussion of the proposed 'digitisation' of much of the patient records and information in the health service, to the extent that the aim is for it to be 'Paperless by 2020' (NHS England, 2015). One definition of 'technology' for the purpose of this thesis might therefore be 'health information technology', 'patient record systems' and 'electronic patient records'. However, these are seen to not stand alone as distinct objects with definable properties and boundaries, but to be the product of the entanglement of the people working in, and using, these services within their material and social contexts. Thus, the definition of technology is not fixed or reified and a necessary ambiguity about its meaning is maintained throughout this thesis.

1.6 Outline of the Research Design

The research design on which this thesis is based is to use a qualitative approach to investigate in depth human-technology interaction. This could be seen as the antithesis of the current emphasis on 'big data' and quantitative methods. The aim of the particular research design is to generate increased understanding of specific processes as they are revealed within the social photo-matrix. That is, rather than produce statistically valid generalisations that might hide the nuances of 'technology at work', which may turn out to be essential to making sense of those processes, and to acting upon them.

It is important to note here that an active choice was made to undertake an empirical study of the engagement with technology of professionals working in the human services, as a way of gaining increased understanding of organizational process that may *inform* consultancy practice, rather than to study consultancy practice itself directly. My view is that the latter would have been premature given the current paucity of evidence to guide the consultant in this field, to which this research aims to contribute.

The social photo-matrix is a method developed by Burkard Sievers (2007, 2008, 2013), drawing on Lawrence's (2005) 'social dreaming' approach and originally used as a consultancy intervention, but more recently as a visual research method (Warren, 2012; Tchelebi, 2013). The method is described in detail in section 3.3 but, in summary, a social photo-matrix is a small group of research participants who provide, in advance of the group meeting, a photograph or other image on the chosen theme. This might be something to do with an organizational problem or social issue. These images are shown anonymously to the group as a whole, who sit facing the projector screen, as the basis for free association to the theme. In the second part of the matrix the group discuss and reflect upon their associations as a way of making further sense of the theme. This draws on Bion's (1962a) 'theory of thinking' with the second part of the matrix providing the apparatus to 'think' the 'thoughts' generated by contact with the images in the first part. The method thus combines visual and psychoanalytic methodologies as a way to access the collective unconscious of the research participants.

The specific design of the social photo-matrix for this project was to conduct two separate groups with four people in each group. The participants were a mix of professionals (psychiatrist, psychotherapist, social worker, mental health practitioner etc.) working with children and young people, and their carers, with emotional, social and behavioural difficulties. The detail of the recruitment process is described in section 3.3.3. The field of child mental health and welfare was chosen as the specific human service on which to base the study, partly because the researcher had access to a large database of contacts in different services through the Northern School of Child and Adolescent Psychotherapy, and also because the introduction of new technology is actively being pursued, and struggled with, in most of these services. It therefore felt like an active field to study in which a variety of dynamic forces were being played out, and which it might be possible to capture through the social photo-matrix method.

The participants were provided with information about the project, including about giving informed consent, and asked to send in (electronically) an image on the theme of 'technology at work'. Each group therefore had a selection of

images to which the participants could respond, firstly through free association and then more reflectively and discursively. The role of the researcher was to facilitate the group by introducing the theme, showing the images and inviting associations, and then moving into the second part where these thoughts were processed. It can be argued that the generation of data via this method is more participant-led than, for example, in individual or group interviews.

The images were a diverse representation of people's experiences of technology in their organizations (see images in Appendix E) and produced a powerful range of responses, views and emotions. Because the groups were small, and the facilitation provided sufficient containment, each participant was able to speak in depth and also to respond to the thoughts of others whose views or experiences may have differed. The outcome was data, gathered via tape recordings, that were transcribed and then analysed using techniques for thematic analysis identified by Ryan and Bernard (2003). 26 codes were generated which then produced seven themes. Within each theme a number of findings were identified (21 in total) each of which addresses different aspects of the research question. These findings are discussed in Chapter 5 and then conclusions drawn in Chapter 6.

The research design enabled rich and practice-near data to emerge. This contributed to the generation of knowledge through empirical engagement with technology's role as a mediator of organizational processes. The advantages and disadvantages of the design are reflected on in section 3.3.4 and also in the critique of the research in section 6.5.

1.7 Structure of the Thesis

The first chapter has outlined the origins and context of the research and how the study was designed to address the specific research question that arose from this. It has been argued that current ways of understanding and working with technology in the human services, and in particular consulting to those processes from a systems-psychodynamic perspective, are inadequate. A qualitative study is proposed which aims to add to theory and practice in this field through an in-depth examination of human-technology interaction within

the specific context of services for children and young people with complex mental health and social difficulties.

Chapter 2 considers current understanding and ways of approaching the question of technology as a mediator of organizational processes through a critical review of relevant literature and empirical research. The chapter takes a broad view of literature in order to assess the different ways in which technology has been theorized and evidence provided of its role within organizations. The focus of the review moves from a global perspective on current controversies about technology to a discussion of human-centric versus techno-centric positions. It then shifts to a more fine grained and integrated analysis of human-technology interaction in complex organizations, and the processes through which that interaction may transform services. The specific example of health information technology is assessed as an example of these processes at work. The review aims to locate the present research as contributing to these different bodies of scholarship that each provide only a partial answer to the question.

Chapter 3 develops the methodological approach and research design through which the intended contribution to knowledge will be achieved. This establishes the epistemology of the research as being one in which an understanding of what is thought of as 'the social world' of organizations is expanded to include non-human material entities and artefacts as symmetrical actors alongside humans. The ontology is then one in which each actor is known, and made sense of, in relation to the other, and not as independently existing entities. This means that a methodology is required that brings into focus both human and material-technological actions and forces as they interact within organizational processes. The social photo-matrix is presented as a visual and collective method which achieves this by providing participants with a space in which associations can be made between conscious and unconscious feelings, and thoughts and images representing their and others' experiences of technology within the organization of child welfare and mental health services. The specific research design and method of data analysis are set out and discussed.

Chapter 4 presents in detail the data arising from the research design, and the themes and findings that emerge from the analysis and interpretation of those data. Seven themes are identified (A to G) which express different aspects of the mediating role of technology and its entanglement with human emotion, thinking and ways of organizing. The themes include: the actions of technology as a powerful actor in the human services; how this is informed by certain powerful discourses; technology's role in anxiety and defences against it; and the ways in which it transforms services through a mediation of the abstract and concrete realms of organizing. Data demonstrating the varied and shifting nature of the participants' attitude to technology is presented, and also evidence from the data about how abstract thinking and creativity might be maintained in relation to technology use.

Chapter 5 discusses the findings from the study and gathers them into a coherent response to the research question, and to the identified gaps in current theory and practice. Three sections of the chapter identify and discuss overall findings that justify conclusions that:

- Technology and people are entangled both physically and emotionally in the organization of human services;
- Technology mediates powerful forces which act on the organization of human services;
- Technology affords a process that transforms the reality of human services organizations.

Together these conclusions provide an answer to how, and in what way, technology acts as a mediator of organizational processes in the human services. A further section discusses the data and findings that may inform the work of organizational leaders and consultants in light of this new understanding of the mediating role of technology. This provides a conclusion that it is possible to realise the promises of technology in the organization of human services if individual and systemic factors are worked with thoughtfully, and an environment sustained in which this can occur.

Chapter 6 brings these conclusions together to provide answers to the principal and subsidiary questions, and to draw out how the knowledge generated by the research can contribute to conceptual and practice developments in

organizational consultancy and human-technology relations. The thesis concludes with a critique of the research and a discussion of the transforming effect of the research process on the researcher, as much as on the topic of study.

Chapter 2. Review of Literature

> Those evil natured robots, they're programmed to destroy us
> She's gotta be strong to fight them, so she's taking lots of vitamins
> 'Cause she knows that it'd be tragic if those evil robots win
> I know she can beat them
> (The Flaming Lips, 2002a)

2.1 Introduction

The focus of the present research, including this chapter, is on technology as a mediator of organizational processes. That is, how technology affects, transforms, changes the way that humans organize, particularly in the human services such as health, education, social care and justice. This chapter reviews a broad range of literature from theoretical and empirical research that may, in different ways, help build a picture of technology and human interaction in organizations. It can be seen that different bodies of literature contribute to different aspects of this picture, but each has blind spots. The review indicates that as consultants and researchers we need to attempt to integrate these different perspectives if we are to work effectively with technology in organizations. It also shows that further research is needed to assist this process of integration. This first section briefly outlines the constituent components of the review which begins from a wide, global, perspective and then gradually narrows the focus from the macro to the micro level of organizational process, before concluding with a detailed review of current developments in one particular human service, namely the NHS in England.

Section 2.2 discusses recent reports on the increasing role of technology in society and our relationship with it. This is important because it shapes the context in which technology is taken up within organizations and the ways in which it shapes the organizational environment. This includes reviewing technology's role in relation to the future of work and the professions.

Section 2.3 considers research arising from the social study of science and technology. The aim here is to critically assess a range of perspectives on the role of technology in organizations, including human services. As well as locating the present research in a series of epistemological and ontological

debates this review identifies an ongoing lack of integration in the literature between subjective and objective views of human-technology interaction. In Section 2.4 the complex nature of human services are considered as a distinct and specific context for technology implementation and use. Approaches from systems-psychodynamics and wider sociological literature are considered. This includes the systemic perspective and empirical evidence of the consequences when technology and context are not aligned.

Section 2.5 zooms in on the human component of organizations and in particular the extent to which psychoanalytic contributions to organization studies can address the subjective, emotional and irrational aspects of human-technology relations. Literature on the role of anxiety, and defences against it, are assessed for their potential contribution to an analysis of technology use. Section 2.6 develops this perspective at the relational level by looking at research that elucidates specific and localised processes that take place in the use of technology by humans. This includes the transformation of concrete experience into abstract representations.

Section 2.7 brings the chapter back to a concrete example of these processes in action through a critique of current plans to implement health information technology (HIT) in the national health service (NHS) in England. This is both an important development and a significant organizational challenge in a service with a history of failed IT implementation projects. The NHS is also the location for the majority of child and adolescent mental health services which are the organizational context for most of the practitioners who participated in the empirical research on which this thesis is based. The final section, 2.8, summarises the main blind spots in the literature where this research may help to provide clarity which then leads into Chapter 3 which presents the research design which aims to achieve this.

2.2 Technology and the Transformation of Work

> Our future is a race between the growing power of technology and the wisdom with which we use it. (Stephen Hawking, cited in Walker, 2015, *no pagination*).

This section starts with a recognition of the current and future benefits of technology but then reflects on emerging concerns about the transformation that is taking place. This is particularly so in relation to the future of work. This shows that there are major controversies in the writing and thinking in this arena. The section concludes with a consideration of the position and meaning of the 'Luddite' in contemporary organizations.

Technology is transforming human society and the world around us. Rapid change continues in many fields of technology and we may be just beginning to see the possible future world this will create (Wired Magazine, 2016). For many there is optimism and enthusiasm about what this will produce. Wired Magazine's 2016 annual trends report predicts many remarkable and beneficial developments. The internet, computers, mobile phones and any number of other technologies have plainly transformed our lives in the past decades. Key future developments centre on artificial intelligence (AI), the use of 'big data', and increasing connectivity including the 'internet of things'. The undoubted benefits of information technology led the United Nations in 2011 to declare internet access a human right because it recognised that the information and opportunities it offers are socially and economically important (Kravets, 2011).

2.2.1 Emerging concerns

Alongside the unquestionable advantages and advances of the information age there appears to be an increasing recognition of, and concern about, the actual or potential dis-benefits of new technologies. Stephen Hawking, for example, has suggested that computers will overtake humans with AI in the next 100 years and, "When this happens, we need to make sure the computers have goals aligned with ours", warning that otherwise, "the development of full artificial intelligence could spell the end of the human race." (Hawking cited in Walker, 2015, *no pagination*). Technology writers and advocates are developing

a more nuanced position on our use of digital technology, including a recognition of the challenges:

> We face unprecedented social, cultural and ethical challenges from technology, which the industry itself isn't objectively equipped to address: the redefinition of privacy; the balance of state surveillance and security; the life-changing opportunities of new healthcare, of transport, of education. (Kiss, 2015b, *no pagination*)

As a technology writer Kiss felt she needed to physically separate herself from the digital world because it had stolen her creativity. Crucially, after taking a break, she says, "I started to think again" (Kiss, 2015a, *no pagination*).

There has been much debate on the effects of digital technology on the human brain, especially in children. There have been calls from leading authors, educationalists and child-development experts for the UK government to introduce national guidelines on the use of screens, amid concern about the impact on children's physical and mental health (Palmer et al., 2016). This includes the controversial suggestion that digital technologies are causing our minds to change physically, or 'being rewired', as it is often referred to (Greenfield, 2014). Greenfield's view was though widely criticised at the time for a biased and selective use of neuroscience leading to, "A poorly researched diatribe on the 'youth of today'" (Robbins, 2014, *no pagination*).

In a series of books that draw on psychoanalysis, Turkle (1984, 1995, 2011) focuses on human-technology interaction. She has spent 30 years observing how people react and adapt to new technologies that change the way we communicate. Her concerns are exemplified by the subtitle of her book *Alone Together* (Turkle, 2011), 'Why we expect more from technology and less from each other'. In her latest work (Turkle, 2015), based on five years of extensive qualitative research including interviews in homes, schools, and the workplace, she demonstrates that an over-reliance on on-line and mobile communication has replaced face-to-face conversation and this is diminishing our capacity for empathy. She argues instead for the 'power of talk' and a reclaiming of conversation rather than mere connection.

2.2.2 The future of work

One area where there has been a lot of discussion recently is on the world of work and employment. Carr (2014), a Pulitzer Prize-nominated technology writer drawing on psychological and neurological studies linking people's happiness and satisfaction to performing work in the real world, argues that humans are becoming less capable as we rely increasingly on technology. He argues that our jobs and our lives are being impoverished by our dependence on computers and, in the world of work, skills will become rusty and eventually disappear when they go unused. Mastering and using skills is crucial to being human, yet automation actively distances us from engagement with the physical world. This position has been criticised (Corbyn, 2015) as being part of a long history of lamenting the loss of skills to technology and that, on balance, the world is better off due to automation. This view could, in turn, be countered from the Marxist perspective of Braverman (1974) that the deskilling and alienation of the worker is an ongoing effect of capitalism's degradation of work; that AI is simply the extension of this process in new form in the 21st Century.

Current changes have been called the Fourth Industrial Revolution (Schwab, 2016). The case has been made (Arthur, 2009) that certain technologies can develop and cause change in a non-linear fashion that creates radical discontinuities that nobody could have anticipated. Naughton argues that the implications of this process are that, "vast swathes of human activity – and employment – which were hitherto regarded as beyond the reach of 'intelligent' machines may now be susceptible to automation" (2015, *no pagination*). A recent report (Frey and Osborne, 2013) estimated the probability of computerisation for 702 detailed occupations, based on US government job classifications. The report found that 47% were at risk from technologies *currently* operational either in laboratories or in the field. This included lots of non-routine, cognitive, white-collar jobs. Similarly, Susskind and Susskind (2015) describe how technology will transform the work of human experts and challenge the relevance of the professions in the 21st Century:

> The professions exist because they help us to solve problems that we do not have the expertise or the time to handle ourselves. Yet there are now

> systems that can do much of this without human experts. (Susskind, 2015, *no pagination*)

Their central argument is that the knowledge and expertise that is currently 'held' by the professions (doctors, lawyers, accountants etc.), and to which access is restricted and expensive, will be shared through increasingly capable systems. They acknowledge the anxieties and objections this raises but argue that they are based on underlying mistakes, such as the idea that professional work is too rarefied or complex to be performed by a machine, which they refute. They also reject the argument that a significant loss in the automation of this work is 'personal interaction', saying instead that, "The purpose of the professions is not to provide people with 'personal interaction'. It is to solve problems that people do not have the wherewithal to solve themselves" (Susskind, 2015, *no pagination*).

This is clearly a major challenge to the caring professions and the human services that are the focus of the present research. In the case of psychotherapy for example, the inter-personal relationship itself is seen as central to its effectiveness, with substantial evidence that, "the therapist is a key change ingredient in most successful therapy" (Blow, Sprenkle and Davis, 2007, p. 298) and that the 'therapeutic alliance' between clinician and patient is, "the vehicle of success" (Catty, 2004, p. 255). A critique of Susskind and Susskind (2015) may be that unrecognised or under-appreciated aspects of human relationships will be lost, indeed are being lost, in the transfer of work to technology. A decline in the 'humanness' of our institutions (Vansina, 2013) and a neglect of the importance of human relationships in governance (Cooke and Muir, 2012) have already been noted.

2.2.3 The 'Luddite' question

Concerns about technological progress and its impact on society, work and relationships, inevitably lead to accusations of 'technophobia' and in particular to being 'a Luddite'. The Luddites were 19th-century English textile artisans who protested against newly developed labour-replacing machinery. This was seen to be a threat to both their traditional skills, and ways of living and working. Whilst the new technologies undoubtedly led to improved efficiency this was at

the expense of a whole class of artisans and to the benefit of the newly emerging class of mill owners. Lisl Klein (2001) addresses the Luddite issue from a socio-technical perspective. With reference to evaluative research on the use of Electronic Patient Records in hospitals, she seeks to understand why some people might respond negatively to new technologies. One reason is a mismatch between policy initiatives and visions of what may be achieved and the operational realities:

> "What I find troubling is that the global, high-level optimism appears to win much more respect from policy makers and development funders than the day-to-day operational struggle, which in fact is often denigrated." (Klein, 2001, p.731).

This thesis is centrally concerned with the 'operational struggles' of technology use in organizations. It seeks to understand how optimistic visions for the digitisation of services may clash with operational reality to create dysfunction in services, and to frustrate the promises of technology. The next section considers the contested nature of technology and different ways in which it has been conceptualised.

2.3 The Duality of Technology[6]: Changing Approaches to Technology in Organizations

This section considers how technology has been theorized within organizational research and highlights a central duality between approaches that are either techno-centric or human-centric. A perspective of 'constitutive entanglement' is reviewed as potentially offering an integrative position.

2.3.1 From technological determinism to human relations

The meaning of technology is contested:

> Technology has always been a central variable in organizational theory, informing research and practice. Despite years of investigative effort there is little agreement on the definition and measurement of

[6] This phrase is taken from 'The duality of technology: rethinking the concept of technology in organizations' (Orlikowski, 1992).

> technology, and no compelling evidence on the precise role of technology in organizational affairs. (Orlikowski, 1992, p. 398).

Orlikowski (ibid) notes the tendency for each conceptualization of technology to focus on some aspects at the expense of others, reflecting an opposition within social sciences between the subjective and objective realms. In a review of the history of technology, Barley similarly refers to the philosophical dilemmas of determinism vs. voluntarism, and materialism vs. idealism, that plague the study of technology, "at the boundary between physical and social phenomena" (1998, p. 249).

Early research assumed technology to be an objective, exogenous force with deterministic impacts on organizational properties such as structure and outcomes (Faulkner, Lawson and Runde, 2010). Technological determinism is the position that, given a set of initial conditions, outcomes related to the introduction of new technologies can be predicted with a degree of certainty (Jackson, Poole and Kuhn, 2001). For much of the Twentieth Century organizations were thought of as machines in which people were parts and were expected to *fit* with the technology of the age (Morgan, 2006). Morgan argues that there is a continuing tendency to fall back on a strictly technical view of organizations where the view is, "if you get the engineering right the human will fall into place." (2006, p. 22). For example, the Children's Database, which was introduced in English local authorities along with the Common Assessment Framework (CAF), has come under particular criticism for its "crude technological determinism" (Hudson, 2002 cited in Peckover, Hall and White, 2009) as a solution to complex and long-standing problems identified in numerous public inquires and serious case reviews.

At the same time, MacKenzie and Wajcman remind us that, "Technological determinism contains a partial truth. Technology matters." (1999, p. 3). Whilst a direct cause-and-effect theory of organizational change is over-simplistic, "to say that technology's social effects are complex and contingent is not to say that it has *no* social effects." (ibid, p.4, *orig emphasis*). Wajcman's (2010) review of feminist theories of technology demonstrates how technology is both a source and consequence of gender relations – each shapes the other.

Foucault's (1975) study of Bentham's Panopticon shows how the technology of the prison building can modify behaviour.

The techno-centric and deterministic view began to be challenged following the Hawthorn Experiments which demonstrated that both productivity and worker engagement could be improved by paying attention to workers' conditions (Mayo, 1933). This work was influential in the development of the Human Relations movement as a response to the perceived inhumanity and simplistic innovation of Scientific Management (Bruce and Nyland, 2011). Failings associated with the privileging of technology over human relationships were demonstrated in Trist and Bamforth's (1951) study which found that the introduction of new coal mining technology had resulted in disappointing results because it had led to a breakdown in the traditional social systems that had developed underground in the mines. Trist and Bamforth developed a modified method using semi-autonomous work groups which, "jointly addressed the needs of both technical and social subsystems" (Krantz, 2013, p.53). This and other early work at the Tavistock Institute of Human Relations (TIHR) led to the development of socio-technical systems theory (Emery, 1993; Eason, 2008a) which recognizes that performance requires both a technical system *and* a social system for the people using the technology, in order to fulfil the institutional task.

The socio-technical approach therefore overcame technological determinism but can be criticized for doing so at the expense of minimizing the role of technology and privileging human agency. As far back as 1952 the management theorist Peter Drucker said;

> It has been fashionable of late, particularly in the human relations school, to assume that the actual job, its technology and its mechanical and physical requirements, are relatively unimportant compared to the social and psychological situation of men (sic) at work. (Drucker, 1952, cited in Emery, 1993, p.4).

In the 1960's Miller and Rice (1967) reframed the social and technical subsystems as task and sentient systems which Krantz (2013) argues enabled the systems-psychodynamics approach to address service intensive,

knowledge-based and client-customer centred organizations. However, '*Systems of Organization*' (Miller and Rice, 1967) has been criticized (Orlikowski and Barley, 2001) for an over-reliance on abstract concepts from systems theory that frame technology as a process with inputs and outputs but insufficiently considers the 'black box' of technology and work practices. For example, when Mersky identifies that, "The technical components [that the socio-technical perspective] most emphasises are role, primary task, organizational structure and boundaries" (2012, p.27), the technical components appear more conceptual than material.

Several socio-technical studies (Peltu, Eason and Clegg, 2008; Eason, 2008b) have examined the introduction, and failings, of the UK National Programme for Information Technology (NPfIT) in the NHS[7]. Drawing on three case studies in the NHS, Waterson (2014) identifies that there is a huge need for electronic systems which can provide support for the management of patient records, and that this is widely recognised by staff, however, "At the same time there is a growing body of work showing that these systems perform poorly and often fail to realise their potential" (Waterson, 2014, p. 150). The findings from these social-technical studies are that the NPfIT systems were rejected by staff because they were judged to be 'not fit for purpose', were set up in order to carry out administrative tasks (e.g., achieving targets) rather than clinical tasks, and because little consultation had been carried out. These findings point towards a *misalignment* of systems to the task of nursing and other forms of healthcare, such that working practices, including safe and effective care, are hindered rather than enabled. This is exemplified in the following quote:

> The way the Stroke Register is set up is primarily around data management. We hope maybe at some stage later we can get something that may help the staff. (Hospital Nurse in Stroke Unit, quoted in Waterson, 2014, p. 157).

[7] See also section 2.7 below for a review of NPfIT by Wachter (2016).

2.3.2 From the social construction of technology to constitutive entanglement

Building on socio-technical approaches, and also Kuhn's (1962) application of sociology to the study of scientific knowledge, several developments occurred in the social study of technology (Callon, 1987) which have been referred to as 'the turn to technology in social studies of science' (Woolgar, 1991). Within this, technology is viewed as an *emergent process* (Orlikowski and Scott, 2008) where the particular interests and actions of multiple social groups shape the design, meaning and use of new technologies over time. The social-construction of technology (Bijker, Hughes and Pinch, 1987), also referred to as the social shaping of technology (MacKenzie and Wajcman, 1999), starts from the point of view that human action itself shapes technology and that its meaning is dependent on its social context. Pinch and Bijker (1987) use the phrase 'interpretive flexibility' to refer to the way in which different groups of people involved with a technology can have very different understandings of that technology, including its characteristics. Significantly, this includes variations in criteria for judging whether a given technology *works* or not. This challenges the taken-for-granted view that technology has a fixed and stable nature, with pre-determined boundaries, where only the inputs and outputs of the technology are seen to be of interest. Thus, in relation to the report[8] '*Making IT Work*' (Wachter, 2016) one might ask, 'by whose definition of *work*?'

A criticism of much organizational theory, particularly the social constructionist view, is an absence of theorizing of the material artefacts through which organizational practices are performed (Fotaki, Metcalfe and Harding, 2014). It is argued that, "Materiality is not an incidental or intermittent aspect of organizational life; it is integral to it" (Leornardi and Barley, 2010, p.34). A focus on materiality is seen as a way of finding a middle ground between technological determinism and social constructionism (Leonardi, Nardi & Kallinikos, 2012). Orlikowski's study uses empirical examples from information searching (Google's PageRank algorithm) and mobile communication (BlackBerry-addicted employees) to critique earlier approaches to technology and organization and instead, "argue for an alternative approach, one that posits the constitutive entanglement of the social and the material in everyday

[8] Reviewed in section 2.7 below

life." (2007, p.1435). This moves the field of study beyond the technology–human duality by viewing humans and technology as *entangled in practice* and a recognition that, "Technologies are simultaneously social and physical artifacts" (Orlikowski and Barley, 2001, p. 149).

A major body of theory and practice which informs the perspective of constitutive entanglement is actor-network theory (ANT) which considers technology as a symmetrical participant in a network of human and non-human actors (Cressman, 2009). Within the network, agency is not something that inheres exclusively in humans but can also be a property of technology (Latour, 2005). Clegg et al. (2013) in their study of 'the banality of evil in a Cambodian death camp' say, "Methodologically, we regard objects as potentially agentic; that is, objects such as administrative systems for conducting interrogations are able to make things happen, such as the deaths of millions of people" (2013, p. 326). Technology artefacts may be the product of human motives and actions but, once there, participate actively in the structuring of organization and the distribution of agency. Clegg et al. (ibid) are not arguing that human intentions are secondary, or that artefacts prevail over humans, but that once a sociomaterial order has emerged we may find that humans are no longer the centre of the network, and that any human intent has been mediated and translated in multiple ways so that it is not possible, or meaningful, to trace it back to source.

Within ANT, an actor is considered to be, "anyone or anything that modifies a state of affairs" and hence, "work practices are nothing less than technology mediated activities" (Andrade, 2010, p. 21). Sandelowski (1998) notes that visual products of technology such as sonographs, x-rays, graphs and charts, are the 'media' of much clinical practice, which is therefore increasingly *mediated* by these artefacts. The distinction between intermediaries and mediators is important in actor-network theory (Latour, 2005). Intermediaries are entities (both human and technological) that make little or no difference to actions as they transport the force of other entities more or less without transformation. Mediators are entities that multiply difference and their outputs cannot be predicted by their inputs (Andrade, 2010). This can be seen to be in conflict with a purely sociotechnical approach which maintains that:

> "The social system, composed of people, is completely different from the artifacts that make up the technical system. The social system, for example, unlike the technical system, is made up of sentient 'components' aware of their environment and capable of generating new behaviour patterns in responses to the changes they perceive." (Eason, 2014, p. 215).

Although clearly not 'sentient' in human terms, the ANT view is that technology similarly engages with its environment and generates new patterns of organizing.

A perspective of constitutive entanglement, and associated concepts such as sociomateriality (Faulkner and Runde, 2012) and actor-network theory, can be seen as an integrative approach in which humans and technology are considered to be symmetrical actors in organizations. However, this view can in turn be criticized as downplaying the subjective, emotional and psychological aspects of human experience in organizations. Western critiques ANT by saying that, "it doesn't account enough for the affective/subjective experience, yet the emotions and subjectivity of humans are part of the political and social organizing processes within these networks." (2009, p.5). This applies in particular to the subjective, emotional and embodied experience of people interacting with technology, and the specific processes by which it may enhance or inhibit thought and action:

> "ANT focuses on agency, but does not explain the irrational and emotional engagements in these networks, which have a great impact on the 'agency' of all actants (human and non-human actors) and the shape of the network itself." (ibid, p.6).

Western's own response to this is to draw on psychoanalysis, in particular Kleinian object relations theory, to address this gap. This is discussed further in section 2.5.1 below.

2.4 Human Services as Complex Organizations

In this section the complex nature of human services are considered as a distinct and specific context for technology implementation and use. Evidence

is considered that indicates the potential consequences when technology and context are misaligned. This includes a review of some key systemic components of the systems-psychodynamics approach.

2.4.1 Organizations as open systems

In addressing the human-technology interaction it is important to consider the context within which that interaction is taking place. The traditional way of conceptualising context in the socio-technical and systems-psychodynamics approaches has been as an open-system defined by the input-conversion-output process (Miller and Rice, 1967; Roberts, 1994). This 'organismistic model' (Morgan, 2006) of organizations is an application of von Bertalanffy's (1968) biological open systems theory to organizational theory. However, Boxer (2013) argues we need to give up the simplistic model of the open system, where inputs are converted into outputs through a primary task, and instead think of organizations as being multi-sided. Based on his study of industry (e.g. General Electric) and the UK National Health Service he suggests that many of the assumptions that underpin open-systems theory, particularly definable organizational boundaries, are of limited use in increasingly turbulent environments. In particular, "Digitalisation and the internet lead every client to expect more dynamic interaction with their particular situation, context and timing." (Boxer, 2013). From an ANT perspective, Latour (1993) has identified that the 'hybridization' of increasingly complex networks between diverse entities is seen, "as a defining characteristic of modernity and the key to its particular dynamism." (Nimmo, 2011, p. 112).

The work of Lewin (1947a, 1947b) including action research, group dynamics and field theory psychology has been influential in the Tavistock approach to organizations (Neumann, 2005). Drawing on Gestalt psychology, the central premise of Lewin's field theory is that people, their surroundings and conditions, depend closely on each other. He says, 'to understand or to predict behaviour, the person and his environment have to be considered as one constellation of interdependent factors' (Lewin, 1946, cited in Neumann, 2015, *no pagination*). This will include problems that inhibit system growth and innovation. Ackoff describes how, "Every problem interacts with other problems and is therefore part of a set of interrelated problems, a system of problems" (1974, p.427). He

helpfully uses the word 'mess' as a socio-technical term to describe this system of problems.

2.4.2 Reductive approaches

There is no doubt that human services are complex organizations operating in increasingly complex environments (Hasenfeld, 2010). However, in a paper on systems theory, Chapman (2002) says that the existing model of public policy-making is based on the reduction of complex problems into separate components that are thought to be rationally manageable. He argues that this is no longer appropriate to complex systems which respond unpredictably to command and control and don't behave in straightforward, linear ways. The result includes, "unintended consequences, alienation of professionals involved in delivery, and long-term failure to improve overall system performance." (ibid, 2002, p.11). Human service organizations also have to adapt to major technological changes that affect their own service technologies (Smith, 2010). If this is done in the reductive ways described by Chapman (2002) then system failure may be inevitable. For example, Wolpert has written of her concerns about how patient reported outcome measures (PROMs) are being implemented in child and adolescent mental health services (CAMHS) including, "the potential iatrogenic[9] impact" (2014, p.141) of the policy requirement for their use. She reports that, "It has emerged that some Provider Organisations have mandated certain PROMs be used in all cases regardless of their clinical utility" (Wolpert, 2014, p.143).

Similar issues have been identified in social care services. Failings associated with the electronic record system for statutory child protection and welfare services, the Integrated Children's System (ICS), were highlighted in the wake of the Baby Peter scandal (Munro, 2011). A series of papers (Broadhurst et al., 2009; Wastell et al., 2010; White et al., 2010) analyse the failings and ascribe them to two major problems, "the excessively complex forms which social workers were obliged to complete at all stages in handling cases [and] the rigid "workflow" regime it imposed, requiring tasks to be carried out in standardized sequences according to inviolable timescales, enforced by consequential management sanctions." (Wastell and White, 2014, p. 144). The professional

[9] Iatrogenic refers to illness caused by medical examination or treatment.

task became formulated in terms of structured recording and management sign-offs and thus became primarily ways of achieving accountability (White et al., 2010).

2.4.3 Affordances and constraints

The key point is that it is not the technology per se that has caused system failure but the way it has been integrated into complex organizations. Zammuto et al's (2007) 'affordances approach' is helpful here. The term 'affordances' is used to denote that new combinations of technology and organizational features continually create possibilities that affect organizational form and function. Drawing on examples from a special issue of the journal *Organization Science* on 'Information technology and organizational form and function', they argue that, "An affordance perspective recognizes how the materiality of an object favours, shapes, or invites, and at the same time constrains, a set of specific uses" (Zammuto et al., 2007, p. 752). Thus, the same technology may afford different organizational possibilities, and practices of organizing, in one context compared to another:

> [The] affordances for organizing depend not only on the functionality characterizing the information technology, but also on the expertise, organizational processes and procedures, controls, boundary-spanning approaches, and other social capacities present in the organization. (ibid, p. 752).

As a social object, technology cannot be separated from its context of use, including organizational expertise, process and structures. These may, or may not, be adequate for the successful implementation of IT in human services organizations. Piotti, Chilundo and Sahay in their study of health information systems in developing countries call for a "cultivation approach" (2006, p. 106) with flexibility in both the systems themselves and the organizational structures that allow for emergent change to develop. This links to Heifetz and Laurie's (2001) concept of 'adaptive change', which occurs when people and organizations are forced to adjust to a radically altered environment. Heifetz and Laurie emphasise the importance of 'adaptive leadership' in these circumstances because, "adaptive change is distressing for the people going

through it. They need to take on new roles, new relationships, new values, new behaviors, and new approaches to work." (ibid, p. 38).

However, how possible is it for people in situations of 'distress' to manage to adapt to new ways of working? In relation to the ways in which individuals and groups respond to anxiety, including that associated with organizational change, Rizq notes that:

> Both Menzies Lyth (1959) and Jaques (1955) point out that it is extremely difficult to instigate change in organizations which are in the grip of such primitive defence systems. These are the very organizations that are least willing to appreciate the magnitude of their institutional problems and are consequently least able to undertake meaningful social change. (Rizq, 2011, p. 41)

Hoggett (2006) argues that public organizations are inherently more complex than private ones because their purpose is contested and because they are used as containers for social anxieties. It appears that their complexity makes it simultaneously more necessary that human services organizations adapt to change, including technological change, and more difficult for them, and their staff, to do so. The particular complexity of the 'social' side of the human-technology interaction is explored in the following section.

2.5 Human Actors in Organizations

In the first part of this chapter the idea was developed of technology as an actor in the creation and maintenance of organizations. In this section the perspective shifts to the human actor and how psychoanalysis may address the subjective, emotional and irrational aspects of organizing not adequately theorized in other research on human-technology relations. There is a particular focus on the extent to which the social defences against anxiety literature is pertinent to the study of technology use in contemporary organizations, as this is a major underpinning of systems-psychodynamics consultancy.

2.5.1 The contribution of psychoanalysis to organization studies

The 'Tavistock approach' (Palmer, 2002) to organizational consultancy known as systems-psychodynamics (Gould, Stapley and Stein, 2001) draws on psychoanalytic theory, especially Kleinian object-relations theory (Hinshelwood, 1991), and its application to individual, group and social processes in the organizational context (De Board, 1978). Fotaki, Long and Schwartz put forward the case for psychoanalysis, "as a critical theory with wide explanatory power and a potential for thinking about organizational practice in new ways" (2012, p. 1105). They suggest it has a specific impact, "on illuminating group dynamics, leadership dysfunctions and the socially sanctioned institutional defences" (ibid, p. 1105). Arnaud argues for the place of psychoanalysis in organizational research in developing, "a more profound comprehension of organizational functioning by taking into account the effects of the unconscious". (2012, p.1121). He describes the unconscious as one of the dimensions of organization and management studies most resistant to scientific investigation, though one that visibly impacts on performance.

However, Fotaki, Long and Schwartz (2012) also note the limited impact of psychoanalysis on mainstream organization and management theory. The evidence from the earlier part of this review suggests this may be as much to do with the lack of interest in subjectivity in mainstream organization studies, as it is to do with perceived weaknesses in the application of psychoanalysis. At the same time, a factor may be the lack of engagement with technology, as a central component of modern organizations, by psychoanalytic scholars. Technology is not referred to in either Fotaki, Long and Schwartz's (ibid) review or Arnaud's (2012) overview of, "*The contribution of psychoanalysis to organization studies and management*". A review of key texts within the psychoanalytic and systems-psychodynamics approach to organizations (De Board, 1978; Huffington et al., 2004; Long, 2013; Obholzer and Roberts, 1994) similarly demonstrates little reference to technology as a specific topic of interest.

The lack of specific attention given to technology within psychoanalysis is beginning to be addressed through recent developments such as the edited volumes by Lemma and Caparrotta (2013), Scharff (2015), and Cundy (2015).

Though they contain relevant contributions the focus of these works is primarily on the use of technology within the clinical practice of psychoanalysis and psychotherapy, for example use of telephone and Skype (Reeves, 2015) and email (Hanford, 2015), or in relation to dysfunctional use of the internet by clients, such as internet pornography (Riddell, 2015; Beveridge, 2015). They do raise a number of points that are potentially relevant to the application of psychoanalytic thinking to technology use in the organizational context. The volume edited by Cundy (2015) takes a specifically attachment theory perspective and notes that relationships of all kinds are now conducted through mobile phones, email, Skype and social network sites. Attachment theory is concerned with the impact of the external world on internal reality and the book asks whether digital technology enhances secure attachment or fuels insecurity and alienation. Similarly, Fonagy asks:

> Has the technological revolution of information technology brought about an irreversible shift in our psychological world? Has the explosion of information technology over the past 25 years changed the human condition beyond comparability with previous epochs? If so, how do these changes interface with what is unchangeable about the human condition?" (Fonagy, 2013, p. xv).

A difficulty with the current application of psychoanalysis to technology is exemplified by Caparrotta and Lemma (2013). Whilst they suggest that communication technologies ought to be of interest to psychoanalytic practitioners in that they, "have the potential to perform such important psychic functions" (ibid, p. 3) as the facilitation and regulation of intimacy, they go on to argue that, "it is incumbent on us to distinguish between the 'properties of tools' and 'what people do with them'" (ibid, p.3). They state that it is the latter that primarily concerns them but in so doing fail to recognise that the properties of tools, their materiality, greatly constrain or facilitate what people do with them. This position has been characterised as:

> The still prevalent but naïve view that objects, especially technological objects, are themselves inanimate and neutral entities that exert no force by themselves in interaction with human users. (Sandelowski, 2002, p.110).

One of the few writers who has brought psychoanalysis to bear directly on technology and organization is Western (2009). Drawing on Kleinian object relations theory (ORT), and actor-network theory (ANT), Western, "tentatively proposes a new ORT-ANT approach to help us understand and explain subjectivity in a 'networked' society." (2009. p.1) His central thesis is that the processes known in psychoanalysis as projection and introjection occur in relation to inanimate artefacts and aspects of the physical world, in the same way as they do between people. In the developmental period defined as the paranoid-schizoid position (Klein, 1946) the infant splits objects into part-objects that are either all good or all bad and may, in phantasy, project and introject these as a defense against the persecuting anxiety of the present bad-object, which substitutes for the pain of the absent good-object (classically the mother's breast). Western says,

> The thesis I am exploring is that psychic objects and part objects, are not only projected into other humans but also into the machines and technologies in our networks. In return we introject not only from other humans, but also from material objects from the natural and non-animate network. (2009, p.9)

Object relations theory (Hinshelwood, 1991) states that we recognize ourselves in relation to an 'other', that is, the internally organized 'objects', such as our primary caregivers, which are our representations in phantasy of what has been taken inside the self or 'introjected'. We relate to these objects throughout life, more or less unconsciously, using them as a template when we encounter new external figures in the real world. Western argues that this 'other' is no longer just human. He writes, "Animate and inanimate objects become entangled and have agency in our networks and within ourselves." (ibid, p. 1) This contention draws on his reading of ANT and his own consultancy work in a fertility clinic, but not directly from empirical research.

Western describes his paper as a tentative step in bringing different theoretical approaches together in the hope that others will develop this work, something that has not been taken further either by Western himself (private correspondence) or others in the field. There is a particular need to undertake qualitative research to explore these ideas in depth which this present research

aims to do. One aspect that Western does not address sufficiently is the *mechanism* by which non-human actors, such as computers, affect subjective experience within the network; what does technology *do*? Further work is needed to understand and evidence technology's action in transforming human psychic processes.

2.5.2 Social defences against anxiety

A central focus of psychoanalytic understanding of organizational processes relates to the role of anxiety arising from the task. Working in the human services means engaging in relationships with people who are suffering and this, "inevitably arouses anxiety, pain and confusion" (Obholzer, 1994, p.206). This can be profoundly disturbing for staff, as part of their role is containment of the client's emotional state. In turn staff need to be contained by their organization (McLoughlin, 2010). Where containment is inadequate, individuals may employ primitive defences in order to manage the distress and for self-preservation, but this can easily become dysfunctional and interfere with the task of caring: "Excessive anxiety can inhibit, erode and even paralyse our capacity to function effectively" (Gutman, 1989, p.5).

Klein (1946) differentiated between the anxieties experienced in the paranoid-schizoid and depressive positions, and the defences mobilized against those different states of mind. In the former, anxieties are persecutory and focused on the survival of the self and are defended against through a cycle of projecting and introjecting fragmented good and bad objects. In the latter, greater integration of good and bad is possible and the anxieties relate more to feelings of guilt and mourning, with increased concern for the other which is defended against through reparation, repression, sublimation etc. What Menzies Lyth (1960) found in her study of nursing systems in a teaching hospital was that these defences can become socially organized. Building on Jaques' (1955) work on 'social systems as a defence against persecutory and depressive anxiety' Menzies Lyth showed how the running of the hospital, its procedures, systems, roles and culture, was structured as a way of evading the anxieties of caring for patients (Bain, 1998).

Several authors have argued for the continuing significance of the social defences thesis for public service organizations (Armstrong and Rustin, 2015; Cooper, 2010; Krantz, 2010; Lawlor, 2009). Stein (2000) has though argued that there is excessive focus on anxiety at the expense of accounting for other emotions such as envy. There has been limited application of social defence theory to technology use (although see Krantz, 2015 below). Whilst Menzies Lyth does give some consideration to the role of materials, such as uniforms and insignia, in social defences, she downplays their agency. She said that, "In my opinion, the influence of the primary task and technology can be easily exaggerated" (1960, p.50). She sees them only as 'limiting factors' and that, "within these limits, the culture, structure and mode of functioning *are determined by the psychological needs of the members*" (ibid, p.50, *emphasis added*). This view seems to exclude the possibility that the process of organizing may also depend on the material aspects of the sociotechnical system.

The extent to which the theory of social defences against anxiety is applicable to modern networked, connected and information-led organizations must therefore be questioned. Jaques (1995), in a reversal of his earlier view (Jaques, 1955), criticized the psychoanalytical approach to understanding organizations as 'dysfunctional'. He argued that, counter to the idea that anxieties lead to defensive systems, it is badly organized systems that arouse psychotic anxieties in organizational members[10]. This appears to exclude the possibility that anxiety is both cause and effect of dysfunctional structures, or vice versa. This stands in contrast with Giddens (1984) 'structuration theory' which posits a 'duality of structure' in which human action simultaneously creates social structures and is shaped by those structures. This has been taken up in relation to organizations with 'adaptive structuration theory' (DeSanctis and Poole, 1994) to study the interaction of groups and organizations with information technology. This shows a dynamic process in which groups using information technology for their work create perceptions about the role and utility of the technology, which may vary widely across

[10] Jaques (1995) argued that anxieties could be addressed through the development of a 'requisite organization' which successfully aligns organizational structure with task.

groups, and these perceptions recursively influence how technology is used and therefore mediate its impact on organizational outcomes.

A further criticism of social defences theory is that it does not adequately address the role of power in defensive formations. It might be asked: whose defences against which anxieties? This is partially addressed by Halton who argues that, in the hospital studied by Menzies Lyth, criticism of practices by the General Nursing Council led to management imposing a harsh regime of emotionally sterile ritual task performance on the nurses as an "obsessional-punitive defence" (2015, p. 34) against their own anxiety about the behaviour of the nursing staff. Fotaki, Metcalfe, and Harding state that, "…power is exercised not from above, but rather resides in local and individual practices of institutional life." (2014, p. 5). If technology use is increasingly central to these organizational practices then it must also be implicated in power dynamics. Building on Foucault's (1975) ideas, Zuboff (1988) proposes the 'Information Panopticon' as a form of centralized power that uses information technology as an observational tool and control mechanism. For example, Rizq says that IAPT's[11] managerial and bureaucratic structure is aimed at implementing a tightly regulated and standardized culture which permits unprecedented levels of surveillance, which is afforded by technology:

> This includes, most controversially, the central requirement for all clinical staff to record multiple clinical outcome measures for each client contact. A range of measures is collected electronically via software systems such as PC–MIS or IAPTUS, monitored by service managers and made available to a central IAPT administration, to be used for national and regional reporting purposes. (Rizq, 2012a, pp. 323-324).

2.5.3 Social defences and technology

The recent volume edited by Armstrong and Rustin (2015) revisits Menzies Lyth's work and recognizes that today's organizations are much more networked, that vertical forms of relatedness (hierarchies) are replaced by horizontal forms, and 'government' is replaced by 'governance' (ibid, p.15).

[11] The Improving Access to Psychological Therapies (IAPT) programme (http://www.england.nhs.uk/mental-health/adults/iapt/, no date) began in 2008 and provides evidence based treatments for people with anxiety and depression. This was initially for adults but was later expanded to including children and young people (https://www.england.nhs.uk/mental-health/cyp/iapt/, no date).

Boxer (2015) notes studies from the US showing that investment in IT has enabled the 'flattening' of organizational hierarchies. Management, regulation and control are achieved less by direct command and more by inspecting, measuring and auditing. Power is exercised in different ways and this is often through technology such as via electronic data collection and the online publication of league tables. Tucker (2015) identifies that the extension of computer technology has enabled more detailed assessment, examination, audit and inspection of schools, "The technology has been used to increase the scrutiny of schools." (Tucker, 2015, p. 264). Hoggett (2015) says that the NHS is especially subject to powerful social anxieties and projections related to health, sickness and death. He argues that these social anxieties get 'embodied' in the organization through its rules, systems and procedures and notes similar processes in child protection as a consequence of repeated "knee-jerk responses from government" (ibid, p. 56) to successive scandals. As a result, "by 2010 child protection social work had become so proceduralized that social workers appeared to spend *more time in front of computers* than engaging in face-to-face work with children at risk and their families." (ibid, p. 56 *emphasis added*) Consequently, "a virtual and electronic child came to replace an actual child engaged in real relations with professional staff." (ibid, p. 56).

The one paper in the volume that directly addresses technology is Krantz (2015) who asks key questions about the nature of containment in networks, eco-systems and virtual groups, and about the anxieties that arise from the emerging work structures. He also raises questions concerning the relevance of systems-psychodynamics in general, and social defence theory in particular, in the 'information age'; he says, "It remains to be seen whether we will be able to adapt our concepts to new conditions and dynamics." (ibid p. 59). Krantz perhaps raises more questions than he answers but does challenge others to adapt to new conditions in ways that are not currently being done. Drawing on Fenichel (1946) he recognises that institutions that are created to satisfy human needs can then take on enduring, impersonal and independent characteristics and thus the need is to understand, "the aspects of the new organizations that are *more than just the people who animate them*." (Krantz, 2015, p. 61 *emphasis added*) He argues that social defences theory shows, "how the non-human aspects of organizational life … can be incorporated into the cycle of

projection and introjection in a way that reinforces people's defences against task-related anxiety by functioning as containers of psychotic anxiety." (ibid, p. 61). He thus partially addresses the criticism of Menzies Lyth above as well as implicitly supporting Western's (2009) conclusions about animate and non-animate objects discussed earlier. The current research seeks to address how non-human entities are incorporated into cycles of projection and introjection, and thereby adapt systems-psychodynamics to these new conditions.

This section has reviewed the contribution of psychoanalysis to the understanding of the human as a subjective, emotional and irrational actor in human-technology relations. This demonstrates a limited, but growing, interest in technology as well as highlighting the potential role of social defences against anxiety in an understanding of technology use in contemporary organizations. The following section examines links between psychoanalytic literature and process theory that may illuminate the processes through which entangled human-technology relations occur.

2.6 Technology and Organizational Process

Building on the psychoanalytic literature reviewed above, this section considers theory and research at the micro level of organizational process where human-technology interaction occurs. After briefly reviewing evidence that technology does transform organizations, the section draws on process theory to assess how and in what ways that may occur. Finally, literature is reviewed that provides responses to such processes.

2.6.1 Technology and organizational structure, practices and outcomes

Wherever one stands in the epistemological debates described by Barley (1998) and Orlikowski (1992)[12] there can be no doubt about technology's increasing role as an actor in organizations, including the human services. Zammuto et al. argue that IT, "has become one of the threads from which the fabric of organization is now woven" (2007, p. 750). This is demonstrated in a review of literature (Bjørn-Andersen and Raymond, 2014) which use various

[12] See section 2.3.1 above

research methodologies to study the impact of IT on organizational structure. What emerges is that:

> There seems to be overwhelming evidence that the continuous IT development has contributed to the emergence of important organizational models over time regarding the creation of new working situations for workers and management. (Bjørn-Andersen and Raymond, 2014, p. 191)

An example from the healthcare sector is Berg and Winthereik's review of the international implementation of Electronic Patient Records (EPRs) which demonstrates that, "technology development is inextricably bound up with transformations in health care practices" (2004, p. 12). This includes the invention of new professional groups, changes to the routines of physicians and nurses, the standardization of terminologies and remodelling of buildings. These are significant findings.

In a major systematic review of six leading management journals on the role of information technology in the organization, Dewett and Jones, "examine IT as a *moderator* of the relationship between organizational characteristics and several organizational outcomes, most importantly, efficiency and innovation." (2001, p. 314, *emphasis added*). However, they also note that IT is still limited in its capacity to enable users to obtain 'soft' information, 'rich' information, or the 'meaning' of information, all of which may be of particular significance in the human services. Despite these limitations technologically-mediated organizational models have been applied to the public sector and human services organizations. For example, 'agile organizations' (McMillan, 1996), which are identified as having originated in Japanese commercial organizations in the 1980's, are currently being promoted within the NHS (NHS Employers, 2013). However, for agile working to be achieved, it is argued that:

> For many organisations agile working requires a complete change in corporate culture, from one where staff are expected to work with frameworks and guidelines designed to control the workforce and minimise risk, to one where people are seen as genuinely valuable assets, for the individuals that they are and the difference they can bring. (Employers Network for Equality and Inclusion, 2013, p. 13).

This would appear to be at odds with other trends in the public sector towards increasing formalization and proceduralization, also associated with technology, and its increasing role in scrutiny and control noted in the previous section. For example, Wastell et al. identify that, “Recent UK government reforms have introduced a range of measures to regulate practice in child welfare, with professional work increasingly structured into formal processes embedded in information technology.” (2010, p. 310).

2.6.2 Technology formalizes work via models

The move to standardise, formalise, systematise and rationalise work in the human services is often done through the use of protocols, pathways, manuals and forms. Protocols, “are vehicles through which order can be brought to all those practices where variation reigns.” (Berg, 1997, p. 1082). The electronic medical record (ERM) is a ‘formal tool’, defined as, “those tools that operate on circumscribed inputs using rules and that contain a model of the workplace in which they are supposed to function.” (Berg, 2004, p. 403). Embedded in the rules for using the ERM – what can, or can’t be entered and in what way – is an abstract model of the workplace. For example, the ERM studied by Berg (ibid) in an ICU in a hospital in the Netherlands contained a ‘medical progress note’ which indicated what had to be investigated, in what sequence, and defined how the findings were to be described. He argues that in so doing the formal tool is attributed a *central role* in organizing the work of the unit. A belief in the superior qualities of formal tools is opposed by those who argue for the fundamental poverty of the formal in comparison with the richness of the empirical world:

> A rule- or formula-based model cannot but delete the details of what it represents. This creates inflexibility and will inevitably result in improper functioning when the formal tool is ‘set free’ in the complex world it supposedly models. (Berg, 2004, p. 406)

Computer systems implemented in health services may not account for the interactive and contingent nature of health care work and are built on overly rationalist models of that work. As a result, argue Ash, Berg, and Coiera (2004) they formalize work activities but then struggle to represent the highly flexible

and fluid ways in which professional work is executed in real life. As such, they may end up being less useful for the primary task of health care. The evidence from Ash, Berg, and Coiera's (ibid) multi-site study of information technology in health is that the failure of some systems, and unintended consequences of others, can be viewed as a misalignment between the *model* of the work on which the technology is built, and the reality of work in practice. As Berg says, "The model of health care work inscribed in these tools clashed too much with the actual nature of health care work." (Berg, 2004, p. 46). This has been described as the gap between 'work as imagined' – by the system designer – and 'work as performed' – the tasks carried out by healthcare staff (Braithwaite, Wears, and Hollnagel, 2016).

This can be seen in Rizq's (2012a) case study of a psychological wellbeing practitioner (PWP) in an IAPT service. She describes how:

> My young colleague was subsequently asked to assess an individual on the basis of a manualized procedure. However, the existence of a written protocol, part of the IAPT model of proceduralism, standardization and regulation, not only clearly failed to help my colleague think about and address her patient's very real anxieties about coming for help, it also appears to have had a dismaying impact on her patient. (ibid, p. 330)

Something that formal tools and computer models have in common is that they abstract from the specific, concrete and empirical to the general, conceptual and symbolic. In this discussion the formal, or the model, is the map – symbolic, clean, abstract, homogenous – and the empirical, or the practice, is the territory – messy, heterogeneous, concrete. Berg, in his own study of the ICU, argues that whilst formal tools can indeed transform workplaces in several ways, this power comes from the interrelation of the formal with the informal, "In doing so, it provides a map that aids doctors in charting, discussing and comparing the territory." (2004, p. 408). However, he also observes that there is a correspondence between map and territory because, iteratively over time, use of the form has changed the practice it represents: "The world has been transformed to fit the map." (ibid, p.408). This conclusion draws on Latour's (1987) study of the laboratory practices of Louis Pasteur in which he demonstrates how work practices on the farm were transformed to match those

in the laboratory: “Bruno Latour attributed the success of Pasteur’s research programme to his transformation of the outside world to meet the requirements of standardization and control first achieved in his laboratory.” (Rustin, 2002, p. 49). There appear to be strong parallels with the current technology-led transformation of mental health services:

> It is going to be increasingly important that all frontline clinicians, managers, commissioners and board members become skilled in use of sophisticated statistical process control methods and aware of the dangers of over interpretation of random fluctuations due to measurement error or chance movement. (Wolpert, 2014, p.143)

2.6.3 Technology abstracts work from its context

Computerization entails abstraction of work from its context; in so doing, it changes the nature of that work (Jackson, Poole, and Kuhn, 2001). Zuboff’s (1988) influential study of the computerization of paper mills looked at how work done by touch, feel and sight was transformed as the factory was automated and managed via computer controls. Traditionally papermakers used the taste and feel of pulp to determine when a batch of paper was ready. This type of tacit knowledge is gained from long experience and is ‘owned’ by the individual craftsperson. Under the computerized system workers had to learn new ways of thinking including the ability to comprehend *abstract representations* of the work processes through computer dials and readouts[13]. The data from the dials related to the same processes as before but in an abstract form, divorced from the human sensations employed previously and independent of any particular knowledge user. In order to use the data effectively workers had to construct the meaning of the information they were presented with, such as when to trust particular readings, through building *internal representations* of their work. Significantly, once this was mastered workers moved to a higher level of processing using the data to gain insights into the, “functional relationships, states, conditions, trends, likely developments, and underlying causes of the processes they were controlling.” (Zuboff, 1988, p. 92). This confirmed the validity of the symbolic representations of the work they had constructed.

[13] As noted earlier, a similar point is made by Sandelowski (1998) in relation to the visual products of technology in healthcare such as sonographs, x-rays, graphs and charts.

Zuboff's study is an example of how work changes when it is computer-mediated and therefore abstracted from the physical. It also appears to support the arguments, for example by Wachter (2016) in relation to health care, that it is both necessary and desirable for technology to fundamentally transform the nature of work and the task. However, in the case of the paper mill the conditions were right for the adaptive change necessary, and the models built into the computer systems proved to be an effective representation of the work itself, or were adapted to become so. Drawing on extensive qualitative research studies of patient care information systems in the United States, The Netherlands and Australia, Ash, Berg, and Coiera (2004) examine the unintended consequences of information technology in health care when these conditions are not in place. Recognising that, in much of the literature on patient safety, patient care information systems (PCISs) are lauded as one of the core building blocks for a safer health care system, they however identify that in some cases organizational systems, routines and regulations are, "*weakened* rather than *strengthened* by the introduction of the PCIS application." (ibid, p. 105, *original emphasis*). Their core argument is that these errors result from the mismatch between the functioning of the information systems and the real-life demands of healthcare work:

> Such failures are the result of *mistaken assumptions* about health care work that are *built into* PCIS applications, creating dysfunctional interactions with users and, sometimes, leading to actual errors in the delivery of health care. (Ash, Berg, and Coiera, 2004, p. 106, *emphasis added*).

If it is additionally recognised that the 'real-life demands of healthcare work' include anxiety arising from the task, then socially organized defences against that anxiety may be a further factor in restricting the ability of staff to adapt to change or take advantage of the benefits of computerization in the way described by Zuboff (1988). Hirschhorn (1997) says that defensive structures create vulnerability in individuals which leads them to, "question their own competence and their ability to act autonomously. In consequence, just when they need to build a more sophisticated psychological culture, they inadvertently create a more primitive one" (Hirschhorn, 1997, cited in Rizq, 2011, p. 45). It can thus be argued that multiple factors have to be in place if technology is to

successfully lead to improved practice, rather than disrupt it, and that this is less likely in complex human services.

2.6.4 Linking psychoanalysis and process theory: the organization-in-the-mind

Drawing on the process theory of AN Whitehead and Henri Bergson (Hernes, 2014), and also the concept of 'performativity' (Barad, 2003), understanding within organization studies has begun to move away from seeing organizations as 'entitative', that is, as pre-existing entities, towards a processual view that emphasizes movement and the enactment of organizations on a day-to-day basis. Hence, there is a focus on *organizing* not organizations (Czarniawska, 2008). Chia (1998) argues that modern organizational theory has an ontology of *being* which privileges states and events. He proposes instead an ontology of *becoming* which privileges processes, transience and emergence.

Young (1994) makes the link between defences against anxiety, organizational change and the capacity to think. Specifically, he highlights Menzies Lyth's argument that the introjection and use of social defences interferes with the capacity for symbol-formation which can result in pathological 'symbolic equation' (Segal, 1957). Young cites the following passage:

> The defences inhibit the capacity for creative, symbolic thought, for abstract thought, and for conceptualisation. They inhibit the full development of the individual's understanding, knowledge and skills that enable reality to be handled effectively and pathological anxiety mastered. Thus the individual feels helpless in the face of new or strange tasks or problems. (Menzies Lyth, 1960, cited in Young, 1994, *no pagination*).

Crucially, he then links this to Whitehead's process theory and the concept of 'misplaced concreteness'. He says that Menzies Lyth's social defences thesis is:

> The institutional equivalent of Whitehead's fallacy of misplaced concreteness whereby abstractions are created for a quite distinct purpose, but that purpose is forgotten and one becomes stuck with them and equates them with reality, substituting them for direct experience,

> which comes to be experienced in terms of the equation between that set of abstractions and reality itself. (Young, 1994, *no pagination*)

The ability to form symbols is a developmental achievement involving the substitution of a symbol for the thing it represents. Segal (1957) identified that an attribute of paranoid-schizoid functioning is the inability to distinguish between the symbol and the thing symbolised; the two are equated. Similarly, Whitehead's 'fallacy of misplaced concreteness' is to allow abstract ideas to become reified, fixed or rigid so that the concepts behind them are forgotten and they are mistakenly thought of as a true and accurate representation of reality (Wood, 2005). Young makes the point that the loss of the symbolic function is a serious deficiency:

> Patients who experience things concretely and equate the symbol with the thing are considered to be in a very primitive, regressed state […] so are people under stress in groups and institutions. (1994, *no pagination*).

The ability to abstract from the concrete to the symbolic is an important capacity. To not be able to do so parallels autistic states. Meltzer et al. (1975, cited in Young, 1994) describe the world of an autistic boy as two-dimensional and paper thin. He can appreciate the surface quality of objects but his impoverished imagination has no means of constructing in thought objects or events different from those he has actually experienced. There are a number of parallels to Rizq's (op. cit.) studies in primary mental health services. She describes a service where clinicians have to ask their clients to complete four separate standardised clinical outcome measures each therapeutic session which are intended to represent and quantify the service user's experience, but:

> What Cummins (2001) has termed an 'auditable surface' and what McGivern et al. (2009) call the 'second order representation of results' then ensure a complex situation where *these visible, measurable signs of activity in a service become indistinguishable from the reality they signify*. (Rizq, 2012b, p. 16, *emphasis added*)

She says that, "Participation in IAPT's 'rituals of verification' (Power, 1999) becomes confused with the performance of good work itself" (ibid, p. 16). Whilst recognizing the need to measure outcomes, Rizq argues that, "to confuse what

constitutes good clinical work with its 'auditable surface' or representation can all too easily sponsor a perverse relationship to reality where clinical practitioners at all levels are drawn into a false or illusory relationship to their work." (ibid, p. 21). Finally, this creates an 'as if' or 'virtual reality' service where, with reference to her case study:

> It is not only important to be seen to be doing the 'touchy-feely thing', the 'touchy-feely thing' has to be seen, evaluated and justified in terms of its demonstrated outcomes: *the signifier has become more important than that which is signified*. (Rizq, 2012b, p. 17, *emphasis added*)

It could be argued that these processes generated a new organization-in-the-mind in which the signifier, or the 'auditable surface', is valued over the work itself. The idea of the 'organization-in-the-mind' (OIM) is an approach pioneered by the Grubb Institute (Hutton, Bazalgette and Reed, 1997) and later extended by Armstrong (2005) as a way of directing attention, "to how the organization is experienced by the role holder, considering the internal picture they present about the organization and how this picture, in their minds, relates to the organization as a whole." (Tucker, 2016, p. 268). The OIM is thus a product of external and internal reality interacting dynamically in the mind as, "a construct of the conscious and unconscious aspects of the organizational world" (ibid, p.268). How the individual perceives the organization, and their role within it, is therefore likely to affect significantly how they relate to change, including that associated with technology. How technology affects the OIM, and how the OIM affects technology use, has not thus far been explored in the literature.

2.6.5 Responses to reification: process consultation

Edgar Schein's 'process consultation' (1988) is one of the foundations of the systems-psychodynamics approach (Boxer, 1999) which builds on group relations training methods associated with the National Training Laboratories (in the US) and the TIHR 'Leicester Conference' (in the UK). Boxer writes that:

> Schein pointed out that it would be inadequate for the consultant to intervene only on the *structure* of an organisation. Since people occupy a network of positions and roles, they introduce *processes* into the structure, which constitute an *informal* organisation, and which serve to mediate the effects of the formal organisation. It was on these mediating

> relationships between people and groups – that is, *processes* - that the process consultant, in Schein's view, should intervene. (1999, p. 152, *original emphasis*).

Boxer criticizes Schein for not theorizing the exact nature of these processes, despite the way in which they constitute the object of the process consultant's work. Further, Schein's definition of process appears to exclude the technological and material aspects of organizing, that is, the possibility that these aspects of the 'formal' may mediate processes between people and groups[14]. In defining process consultation he says, "all organizational problems are fundamentally problems involving human interactions and processes" (Schein, 1988, p.12). This can be contrasted with Latour's (2005) thesis that what we might see as 'social forces', are in fact the outcome of an ongoing process of connections, relations and networks between heterogeneous actors which include humans alongside non-human elements of nature, material artefacts and the physical world.

A further element of organizational consultancy practice is the provision of containment for the client's anxieties and frustrations (Obholzer, 1999), including as a way of moderating defensive structures. This is analogous to the action of maternal 'reverie' described by Bion (1962a) in bearing the frustrations of the infant sufficiently that a mechanism for thinking can emerge within the child. Bion (1967) proposed that the psychoanalyst should develop what the poet John Keats called *negative capability*, that is, "capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason." (Keats, 1817). Simpson and French (2006) apply the concept of negative capability to leadership situations as the capacity to acknowledge the possibility that they *do not know* which enables leaders to remain open to the dynamics of the present moment[15]. This implies a move away from concrete perceptions to sense-making in the here and now in the context of interaction with the problem. With reference to AN Whitehead, Morris argues that an insistence on the primacy of process is a way of correcting the fallacy of

[14] cf Giddens (1984) 'structuration theory' discussed earlier which suggest a recursive relationship between human action and social structures.

[15] The same capacity identified by Wachter (2016) (see section 2.7.3) as being necessary for those working in IT development in order to manage 'adaptive change' (Heifetz and Laurie, 2001).

misplaced concreteness, "We must take potentiality seriously, and we reify that which is not intrinsically concrete only at the cost of confusion, error, ugliness, and general moral debilitation." (1941, p.470). Wood describes this as rising, "to the *ontological* challenge of *processes* rather than *things*" (2005, p.1101. *Original emphasis*). Thus, questions arise about the role of technology in the process of reification; and the role of consultancy in the process of de-reification.

Having considered organizational process in detail in this section, but perhaps at a somewhat abstract level, the final part of the review of literature returns to the concrete by critiquing the implementation of health information technology (HIT) as a specific example of technology use in the human services.

2.7 Technology and the Transformation of Healthcare Services

This section focusses on current policy developments in the national health service (NHS) where it is envisaged that technology will transform the organization and delivery of care. The main body of this section is a review of '*Making IT Work'* (Wachter, 2016), known as the Wachter Report, on the implementation of health information technology (HIT).

2.7.1 Information technology in the NHS: current policy initiatives

The central policy document currently driving the future of the NHS is known as the "*Five Year Forward View"* (NHS England, 2014). This sets out a vision for transformational change and investment of £4.2 billion in technology on the basis that, "It will be impossible for the NHS to become a modern, effective and efficient healthcare system without wholly embracing the digital agenda." (Sood and McNeil, 2017, p. 119). This includes a commitment to exploit the information revolution and specifically that, by 2020, there will be, "fully interoperable electronic health records so that patients' records are largely paperless" (NHS England, 2014, p. 32). NHS England and the National Information Board[16] (NIB) have produced a framework for action under the title, "*Personalised Health and Care 2020: Using Data and Technology to Transform*

[16] The National Information Board (NIB) was established in 2012 with the aim to, "provide leadership across health and care organisations on information technology and information" (https://www.gov.uk/government/organisations/national-information-board, no date).

Outcomes for Patients and Citizens" (National Information Board, 2014). This is supplemented by several delivery documents including, "T*he Forward View Into Action: Paper-free at the Point of Care - Guidance for Developing Local Digital Roadmaps*" (NHS England, 2015).

In support of these efforts to digitise the secondary care system 'The National Advisory Group on Health Information Technology in England' was set up in late 2015 to advise the Department of Health (DH) and the NHS. The Group was Chaired by Professor Robert Wachter of the University of California, San Francisco and it reported in August 2016. The report '*Making IT Work'* (Wachter, 2016) provides a critical commentary on the implementation of Health Information Technology (HIT) and seeks to inform the NHS in England[17] through an appraisal of past and current developments and the provision of findings and recommendations. It draws on lessons from the UK and US and on relevant literature. As such, the Wachter Report represents the most current and thorough assessment of HIT implementation in England.

2.7.2 Learning from past failure

The current plans for digitisation of the NHS represent a resurgence of interest and investment in technological solutions following earlier failures, in particular the National Programme for Information Technology (NPfIT). This was launched in 2002 but was shut down in 2011 after having mostly failed to achieve its goals. Subsequently, "the NHS went through a period of stagnation with regards to digitisation" (Wachter, 2016, p. 25). A major criticism of NPfIT was that the programme employed a centralised, top-down, approach that was felt to be politically driven. This was underpinned by a deterministic view that IT implementation alone was sufficient. The report notes that:

> The experience of industry after industry has demonstrated that just installing computers without altering the work and workforce does not allow the system and its people to reach this potential; in fact, technology can sometimes get in the way. Getting it right requires a new approach, one that may appear paradoxical yet is ultimately obvious: digitising

[17] Because the delivery of health services have been devolved in the rest of the UK the policies and reports relate only to the NHS in England.

> effectively is not simply about the technology, it is mostly about the people. (ibid, p. 6)

Whilst this belated recognition of the importance of people is positive, the recommendation that 1% of the £4.2 billion currently allocated for health IT is invested in workforce hardly seems consistent with a 'new approach'.

The other comparator in the report is the US programme called the Health Information Technology for Economic and Clinical Health Act ('HITECH') which has been deemed a success in that, "in just the past five years the US healthcare system has gone from being primarily analog to being primarily digital." (ibid, p. 19). This has though not been without its problems. The Electronic Health Records (EHRs) used in HITECH have been criticised for, "their relative inattention to basic principles of user-centered design [partly because] EHRs were designed to address billing/financial functions at least as much as, if not more than, the clinical needs of doctors, nurses, and patients" (ibid, p. 21). They have been cited as a major source of physician burnout in the US (Friedberg et al., 2013 cited in Wachter, 2016, p. 22). Because of the 'documentation burden' of EHRs there has been a, "meteoric growth in the number of 'scribes', individuals hired to provide real-time EHR documentation, allowing physicians to concentrate on (and make eye contact with) their patients" (ibid, p. 22).

2.7.3 Transforming services

One of the key lessons *Making IT Work* takes from these earlier problems is that there has been a, "failure to appreciate that digitisation completely changes the work – the nature of the work, the tasks to be done, and who does them" (ibid, p. 9). This is significant because it suggests that digitisation of health services will, and perhaps should, change the very nature of *the work, the tasks and the workforce of the NHS*. This raises important questions, not only about its achievability, but also the likely effects on patient care, clinical practice and the organization of services. It appears that a major transformation of 'the work' of the NHS through technology is a desired and intended outcome of current policy, but it can be questioned whether the full implications of this are understood.

The goal of digitising health systems is seen as being to, "promote what has become widely known as healthcare's Triple Aim: better health, better healthcare, and lower cost[18]" (ibid, p. 27). This in turn is based on, "the premise that, if appropriately deployed and used, digital health care is safer and of higher quality than care delivered through paper-based systems. Digitisation should also be an enabler of better health" (ibid, p. 27). It is evident that digitisation and the transformation of health care are closely inter-linked. However, it isn't clear that the NHS and its staff are in a position where they might achieve this in ways that maximise benefits whilst minimising disruption and risks to services. The point is made that, with NPfIT:

> Many observers and stakeholders mistakenly believed that implementing health IT would be a simple matter of technical change […] In fact, implementing health IT is one of the most complex *adaptive changes* in the history of healthcare, and perhaps of any industry. (ibid, p. 4, *emphasis added*)

The idea that health IT entails both 'technical change' and 'adaptive change' draws on the work of Heifetz and Laurie (2001):

> Technical change is straightforward: simply follow a recipe or a checklist and the problem will be solved. Adaptive change involves substantial and long-lasting engagement between those implementing the changes and the individuals tasked with making them work. (Wachter, 2016, p. 36)

Wachter places great emphasis on recognising the fact that:

> Digitising large, complex organisations – particularly those, like healthcare, that do not involve repetitive, assembly line-type work but rather work with substantial complexity, nuance, and decision making under uncertainty – is adaptive change of the highest order. (ibid, p. 36).

The report's view is that, even after NPfIT, the lessons of adaptive change have not been fully learned, and this threatens current efforts to digitise the NHS. It

[18] There is now a push to add a fourth aim of 'professional satisfaction', the absence of which highlights the extent to which human factors are not currently prioritised in the system (Bodenheimer & Sinsky, 2014)

appears there continues to be a lack of appreciation for the complexity of change in large systems, especially 'human systems' (Mumford, 2003) such as the NHS. Significantly, Wachter suggests that, "Adaptive changes are those in which managers *don't already know the answers*, and therefore require changes in the behavior of front-line workers and their active engagement with the problem." (ibid, p. 9, *emphasis added*). How these behaviour changes, including the capacity of managers to develop and sustain a capacity for 'not knowing' (French and Simpson, 1999), are to be achieved is not defined and this appears to be a gap in current thinking that this research might address.

2.7.4 Critique of current developments

Government policy in England has positioned technology at the heart of plans to make the NHS 'a modern, effective and efficient healthcare system'. There is a desire to learn from the failure of NPfIT that was seen as over-centralized and insufficiently orientated towards the needs of clinicians. It is argued that a new approach should emphasise the importance of people, the nature of the work, and of adaptive change to meet the specific needs of a highly complex system. In reviewing the Wachter Report a further critique is provided that many of the hoped for conditions, that are identified as essential for successful HIT implementation, may not be present in many parts of the NHS. For example, deficiencies in organizational culture were a key finding of the Francis Report into failings at Mid Staffordshire NHS Foundation Trust (Francis, 2013), including an emphasis on counting 'numbers' rather than patients. If this isn't addressed then digitisation may lead to further dysfunction.

The transformation of services through IT implementation entails changing the nature of 'the work, the task and the workforce' of the NHS. This is a bold claim with many potential implications which are not discussed in the report or the associated policy documents. What does it mean, in practice, to change the work and the tasks of a nurse on an Intensive Care Unit, or of a psychotherapist in a community mental health service, through an alignment with new technologies? It seems the *aim* of technology-mediated healthcare is embraced, but not the *how*. The present research seeks to illuminate the processes through which technology is transforming services and therefore add to an understanding of how they can be better managed.

2.8 Conclusions from the Review of Literature

The review of literature has noted that different bodies of scholarship – psychoanalysis, systems-psychodynamics, actor-network theory, sociomateriality – have strengths in their approach to human-technology interaction but none is able to hold the 'full picture' in view. Systems-psychodynamics is a powerful tool for explaining, understanding and working with human subjectivity and inter-subjectivity in the work context but to date has lacked a way of critically engaging with technology. Following the *material turn* in the social sciences (Mukerji, 2015) it is suggested that technology and humans should be viewed as constitutively entangled, with neither seen as, "independently existing entities with inherent characteristics" (Orlikowski, 2007, p. 1438). However, within the body of work concerned with materiality and organizing (Leonardi, Nardi and Kallinikos, 2012) there is a lack of engagement with subjective experiences of feeling, affect, emotion or more generally of human psychology.

What therefore is lost from sociomateriality is the role of the human unconscious within the entangled relationship with technology. Using a term from the social study of science and technology (Woolgar, 1991), it may be said that the human becomes a 'black box' of which only its external, physical engagement with the material world is considered. Psychoanalysis opens the black box of the person, in the same way that science and technology studies opens the black box of technology (Jarzabkowski & Pinch, 2013), and observes the emotions, drives and valencies that influence how we engage with technology based on deeply inscribed ways of relating going back to infancy. This raises the question of what might be gained by opening simultaneously the black boxes of both technology and the human. What new types of question might be asked if both aspects can be held in mind. For example, rather than asking, 'what does technology do to human practice?', we might ask, 'what do humans and technology do together in practice?'. Other questions might relate to the emotional aspects of the human-technology entanglement, the kinds of forces being mediated and how organizational processes are transformed.

The ‘blind spots’ in each of the theoretical bodies reviewed, those aspects that are respectively absent from their world views, are particularly important when the process of organization under consideration is that in the human services. Here the task relates to work with humans rather than some other ‘product’, with all the complexities that this brings and therefore a greatly increased need to understand the ‘internal workings’ of the actors doing the organizing – that is, both human and technological actors. Equally, the role of technology is often neglected or considered secondary, or problematic, in these services. The essential paradox – of the tremendous need for technology to improve the organization of human services whilst these being simultaneously the most complex and difficult context in which to successfully achieve such change – was demonstrated in the review of health information technology in the NHS. This also showed how far these services need to travel in order to fully recognize the needs and complexities of both the technical *and* human aspects of organizing.

The aim of the following chapter is to develop a methodology where it is possible to keep both of the absent aspects of organizing in view simultaneously, to overcome both blind spots, and to design a research method that might help to address them.

Chapter 3: Research Design: Methodology and Method

> You know that we are living in a material world
> And I am a material girl
> (Madonna, 1984)

3.1 Introduction

The preceding review of literature demonstrated that there is a need to set aside approaches that understand our engagement with technology as a duality of two connected, but essentially distinct, social and technical systems. Instead, a more fruitful way of viewing technology in practice is as an entanglement in which neither the social nor the technical can be separately defined because of the deep interpenetration of each into the other. This then focuses the area of study towards understanding the implications of technology as a mediator of organizational processes. Methodologically, the challenge is how to observe and understand this mediation in the ongoing process of organizing.

Section 3.2 sets out the methodological approach that was taken in this research in order to meet this challenge through the use of both psychoanalytic and post-social analytic frameworks. Section 3.3. describes how this was realised through a visual research method, the social photo-matrix, that allows for both materiality and ambiguity to enter into the research setting. The design of the research is described including the choice of the child welfare and mental health sector as the research site, how the groups were recruited to and conducted, and the role of the researcher. The advantages and disadvantages of the method are discussed. Section 3.4 demonstrates how the resulting data were analysed to generate themes and findings and 3.5 closes the chapter with a discussion of issues of reflexivity, validity and ethics.

3.2 Research Methodology and Approach

The approach to the study begins by recognizing psychoanalysis as central to the organizational consultation practice out of which the research topic arose, and which it seeks to inform. Psychoanalytic interest in the internal world is then linked to an interest in the social world, and the interaction between the two, through the field of psycho-social studies. These approaches are then viewed

through a different lens of theories of post-sociality which acknowledge the influence of non-human actors in organizations. The framework follows a relational ontology where artefacts and people can only be known in relation to the other. This leads into a discussion of the key aspects that are required of a methodology that takes materiality seriously, including generalized symmetry, heterogeneity and material agency drawn from actor-network theory.

Together the methodological considerations in this section provide a framework for seeing both subjective and objective experience. In the section that follows a method of enquiry is established which attempts to achieve this 'binocular vision' by inviting the research participants to respond to images that they themselves have chosen to represent their engagement with technology in practice. This method, which has both visual and interpretive components is known as the social photo-matrix.

3.2.1 Psychoanalytic underpinnings

The research project described in this thesis is fundamentally practice orientated in that it arose out of concerns about working as an organization consultant in an increasingly technologized world. The Tavistock paradigm in organizational consultancy (Palmer, 2002), in addition to drawing on socio-technical, systemic and group relations theories, is underpinned by a psychoanalytic view of intra-psychic processes and their relation to the social world. Hence, this research, and its methodology, are similarly grounded in psychoanalytic ways of understanding individuals, groups and organizations beneath the surface (Stapley, 2006). Psychoanalysis underpins this study as an approach to the human subject both theoretically and methodologically, especially in the view that the unconscious plays a role in the construction of our reality and the way in which we perceive others – a distinctive psychoanalytic framework for research methods and the analysis of findings:

> Our subject is one that is not only positioned within the surrounding social discourses, but motivated by unconscious investments and defenses against anxiety; our data production is based on the principle of free association; and our data analysis depends on interpretation. (Hollway and Jefferson, 2013, p. 72)

The key point here is that this research is interested in *both* the unconscious processes of individuals *and* their position within surrounding discourses and the 'social world' more broadly. This positioning of the subject in the interplay between internal and external worlds is exemplified by the developing field of psycho-social studies (Clarke, 2006) which, "uses psychoanalysis as a tool for understanding societal phenomena" (Clarke and Hoggett, 2009, p.3). In this sense Menzies Lyth's (1960) concept of social defences may be considered a psycho-social concept, rather than simply a psychoanalytic one, sitting as it does between the intra-psychic and the social. The practice of systems-psychodynamics could equally be seen as psycho-social practice in the context of work with organizations and the interplay between the (internal) dynamic unconscious and the (external) dynamic system. A parallel and related development is the socioanalytic approach which is similarly described as, "the study of groups, organisations, and society using a systems psychoanalytic framework." (Long, 2013, p.xxi). Indeed, the social photo-matrix method (Sievers, 2013) used in this research is included as a socioanalytic method in Long's (ibid) edited volume.

Where the epistemology of this research differs from, and builds on, these inter-connected theoretical and methodological approaches is in what is understood by the term 'social', as in psycho-social, socioanalytics and socio-technical. Specifically, it considers the physical/material world to be equally important in constructing what we traditionally think of as the social world. Latour's central thesis in *Reassembling the Social* (Latour, 2005) is that 'society' or 'the social' do not exist as a distinct domain that can be interrogated. He is instead interested in how, what we might see as 'social forces', are in fact the outcome of an ongoing process of connections, relations and networks between heterogeneous *actors* which include humans alongside nature, material artefacts and the physical world. Latour therefore uses the term 'social' to refer to the "trail of *associations* between heterogeneous elements" (2005, p.5, *emphasis in original*), where these 'elements' are both human and non-human and which work to assemble and reassemble the world as we see it. As a consequence the use of 'social' must be redefined to include non-human, material artefacts.

3.2.2 The post-social approach

> The post-social turn in the social sciences calls upon researchers to de-centre the human actor from the heart of analysis and to recognize the constitutive influence of non-human actors, including technologies and material objects. (Humphries and Smith, 2014, p. 478)

We do live in a material world and so our research methods must attend to this reality. The main elements of how a post-social approach impacts on the research methodology are described below.

3.2.2.1 A relational ontology

Research that recognises that contemporary forms of organizing are increasingly entangled with technology requires a methodological approach which assumes the social and the technical to be, "ontologically inseparable from the start" (Introna, 2007, p. 1). The more technology is embedded in organizations the more a presumption of discrete separation between people and artefacts becomes problematic. Sociomateriality is informed by a relational ontology, "which rejects the notion that the world is composed of individuals and objects with separately attributable properties that exist in and of themselves" (Orlikowski, 2010, p.134). Humans are constituted through their relations to materials, including technology, as well as with other humans. "This is a thoroughgoing *relational materiality*. Materials – and so realities – are treated as relational products. They do not exist in and of themselves" (Law, 2004, p. 42; *emphasis in original*). We have become so entangled with the technologies around us that it is no longer possible to say where we begin and they end, and research therefore needs to explore our dynamic relationship with things that, "constitute the very possibility for us to be the beings that we are" (Introna, 2007, p.25). A post-social approach undercuts the subject-object dualism in conventional organization studies as technology is seen to actively participate in organizational life and reciprocally shape human sense-making.

3.2.2.2 Generalized symmetry

A key tenet of actor-network theory (ANT) is that what we think of as *social* isn't purely human (Law, 2003) and this has increasingly become an important reference point for anyone who wants to take seriously the role of non-human

actors in social life leading to the development of post-social research (Humphries & Smith, 2014) or social research in a more-than-human world (Nimmo, 2011). ANT has been described as a loose toolkit or sensibility that can help, "sensitise researchers to complex and multiple realities which might otherwise have remained obscure." (Nimmo, 2011, p. 109). At a basic level this directs the researcher's attention to the significance of material artefacts in social life and suggests that social relations should not be seen in isolation but as always existing in relation to all kinds of networks between humans and other entities. For ANT, 'society' does not exist exclusively in person-to-person relations as these relations are always mediated by non-humans including materials, technologies, animals or eco-systems (Law, 2003).

ANT rejects the dualist notions of 'society' and 'nature', or 'subjects' and 'objects', and instead posits hybrids, "heterogeneous assemblages" (Nimmo, 2011) in which all are inextricably linked. The key methodological strategy is to treat both subject and object, human and technological, with "generalized symmetry" (Latour, 1994, p. 94), treating both in the same terms and analysing relations that cut across them. In this study technological artefacts will be treated symmetrically[19] to humans as participants in a network of actors that temporarily align to form the effect of stable structures. These structures are what we often describe as social institutions, including organizations, but their solidity is an *effect* of the actor-networks that constitute them, rather than of exogenous 'social' forces. (Latour, 2005) "To insist on symmetry is to assert that *everything* deserves explanation and, more particularly, that *everything* you seek to explain or describe should be approached in the same way" (Law, 1994, pp. 9-10, *emphasis in original*).

3.2.2.3 Material agency

Perhaps the most controversial effect of generalized symmetry is the postulation of *material agency*; that agency is not the exclusive property of humans but that "objects too have agency" (Latour, 2005, p. 63). By challenging the dualism that gives the capacity for agency only to humans the entanglement with non-human actors can be fully explored. "Objects are

[19] As discussed below in relation to material agency, the concept of symmetry does not imply equivalence, either moral or otherwise.

approached as agents, that is, as entities with the capacity to do something." (Humphries and Smith, 2014, p. 479). In the case of the milk industry studied by Nimmo this enabled him to, "perceive the remarkable entanglements of human and nonhumans which [he] soon found at the heart of every significant historical transformation of the milk industry." (2011, p. 111) Clegg et al. argue, "Agency is a relational process, with things and artefacts participating in the circuity of agency. Some objects are mobilized to empower the dominant group and ideology and to disempower its opponents." (2013, p. 336). It is important to note here that ANT makes clear the distinction between agency and intentionality (Andrade, 2010). Both humans and non-human entities have agency but only humans have intentionality. Attributing motivation or intentions to artefacts would be to fall back into technological determinism (Latour, 2005).

The idea of an actor as, "anyone or anything that modifies a state of affairs" (Andrade, 2010, p. 21) is helpful in understanding material agency. In methodological terms, to posit human agency as primary and causal, whilst sideling other entities as circumstantial or contextual, would be an a priori ontological distinction not justified by the empirical evidence:

> Thus it transpired that agency was not a property of certain kinds of entities at all, but was in fact an emergent property of the networks and inter-relationships between heterogeneous actants[20] – it was a relation effect. (Nimmo, 2011, p. 112)

3.2.2.4 Embodied actors

The concept of material agency places technology centrally as an actor in the process of organizing (Knappett and Malafouris, 2008). However, a research framework for considering our entanglement with the material world must also consider how we as humans interact with the physical world with our bodies, as well as with our minds. Attention to the body in social studies generally, and organization studies specifically, is characterized as an 'absent presence' (Hassard, Holliday and Willmott, 2000, p.3). Bodies have been taken for granted or ignored but there is an increasing desire to consider the body in relation to practices of organizing, with a particular focus on issues of identity,

[20] The term 'actant' is used by some ANT theorists to denote both human and non-human actors. To avoid confusion I have stuck with 'actor' throughout except in direct quotes such as this.

gender and sexuality from feminism and queer theory (Hassard, Holliday, and Willmott, 2000; Harding, Lee, Ford and Learmonth, 2011). Theoretical frameworks such as ANT assert the need to treat all entities (human and non-human) as embodied actors in relationship with each other. Sandelowski (2002) has thus argued for the need to *re-embody* qualitative enquiry. For example, Savage (1997) has described nursing as an 'embodied practice' and in her study of the nurse-patient relationship she demonstrated "the fully embodied nature of knowing and knowledge" (cited in Sandelowski, 2002, p. 109).

The preceding sections have argued that to study technology we need to address the roles that physical artefacts play in human interaction and how we use our bodies to relate to these objects in everyday life. Conceiving of artefacts and people in this way allows this study to see how each enables, shapes or constrains the functions of the other. Without bodies and material objects organizations become empty, entirely abstract spaces.

The research framework described leads to a method of enquiry, set out in the following sections, which seeks to foreground the material aspects of technology by inviting the research participants – practitioners working in the human services – to respond to images that they have chosen to represent their engagement with technology in practice. The social photo-matrix method (Sievers, 2007, 2008, 2013) combines the use of visual representations of technology with psychoanalytically informed free-association that leads to a collective process of interpretation and sense-making by the participants and the researcher.

3.3 Research Design and Method

This section sets out the social photo-matrix (SPM) as a coherent method for studying human-technological entanglement through the use of a visual approach and free association linking subjective responses about technology to visual representations of it. The SPM is established as a binocular method in which both elements of the human-technology entanglement can be seen *in relation* to each other, thus avoiding subject-object dualism. This section also includes details of the design and conduct of the research including recruitment

of participants, the images used, the role of the researcher and how the groups were facilitated.

3.3.1 The visual mode

There has been a recent growth of interest in visual methods and their potential for qualitative organizational researchers (Davison, McLean and Warren, 2012) to address the under-theorized 'visual mode' of discourse and meaning construction, which has remained largely unexplored in organization and management research (Meyer et al., 2013). The use of imagery and visualization techniques is a developing component of psycho-social studies (e.g. see Harrison, 2002) as a way of challenging traditional models of human rationality, with its focus on language and cognition (Clarke and Hoggett, 2009). Hoggett proposes the use of imagery, and free association to imagery, "as a means of taking organizational participants beyond discourse" (2006, p.191).

The increased use of visual methods can be linked with Sandelowski's (2002) criticism of the open-ended interview as the primary means of generating data in qualitative health research. She argues that the over-reliance on the interview is due to the neglect of the physical/material world in qualitative research as well as being, rightly, a response to positivism's perceived neglect of the private and personal. Whilst the qualitative interview is seen to give 'voice' to the neglected subject Sandelowski says the idea that it, "reveals authentic experience is as erroneous as the idea among quantitative researchers that the standardized interview ideally yields tabulatable and stable facts." (2002, p.105-106). Instead:

> We need ideas, tools and approaches which allow us to trace and capture the role that images may play in performing organizations and constructing truths, in creating and presupposing ideas of rationality and reason, heterogeneity, multiplicity and alterity, which lies behind apparent occurrences of stability and durability. (Davison, McLean and Warren, 2012, p. 6).

Visual methods therefore help the researcher analyse the, "processual and heterogeneous dimensions of organizing" (Steyaert, Marti and Michels, 2012, p. 35).

One established visual method is photo-elicitation which is a process of including one or more photos in an interview and is based on:

> The view that there can be important differences in how we react to different modes of symbolic representation – principally, between the visual and the textual – this methodological approach emphasizes the power of perceptive, interpretive and reflexive processes.
> (Slutskaya, Simpson and Hughes, 2012, p.17)

In their study of butchers, Slutskaya, Simpson and Hughes (ibid) noted how the use of photos helped to elaborate the physicality of the work, including embodied skills and proficiencies.

For Bramming et al. (2012) the image is used as a performative method so it is the image-in-use that is studied rather than conceiving of the image as a direct representation of some organizational 'truth'. Davison, McLean and Warren (2012) criticize early visual research in organization studies for adopting this latter view. The ambiguity of visuals is an advantage as they can open up complexity because there can be no single interpretation. Visuals may therefore be a method that preserves complexity, multiplicity and *not knowing*; allowing movement between abstract and concrete. Additionally, "The photograph brings, in a convoluted fashion, a certain materiality into the research process" (Bramming et al, 2012, p.56) especially if, as in the current research, the participants are engaged in the physical acts of taking the photo and viewing it.

3.3.2 Description of the social photo-matrix

The social photo-matrix (SPM) was originally developed by Sievers (2007, 2008, 2013) out of Lawrence's (2005) 'social dreaming' method, as a, "practical consultancy intervention to help organizational members understand their working lives more fully" (Warren, 2012, p. 86). The method has continued to be used for organizational consultancy purposes (Mersky, 2012) and more recently has been taken up as a visual research method within organization studies (Warren, 2012; Tchelebi, 2013). SPM utilizes photography and free association to access the collective unconscious thoughts and feelings of a group of people about their organization or a chosen theme, which in the case of this research

was ‘technology at work’. Participants come together as a group or ‘matrix’ for collective viewing, to share their associations, amplifications and links in as free a way as possible. The aim is to generate a large number of ‘thoughts’ which can later be processed in the reflective session which follows the matrix. The thoughts include direct experience of the photo and memories of earlier, connected, experience. As such it provides a way to access something of the participants’ experience of working with technologies in practice and, as the members both select and interpret the images, it can be seen as a participant led process of knowledge generation.

The ‘matrix’ is an arrangement of chairs so that participants look at the screen rather than each other. This promotes a relationship to the image though each can hear the others’ associations and amplifications. Participants are encouraged to associate to the photograph, not to the imagined motivation of the photographer. They are prompted not to interpret rationally what the image is ‘of’ in a concrete way or what the photographer’s intent was. The anonymity of the photos is important – who took it, why – to allow for new meaning-making in the matrix. A containing environment is necessary to support them to associate and share freely. This first part of the process takes one hour.

The chairs are rearranged for the reflection session to form a circle so that people can relate to each other and the facilitator. The aim of reflection time is to explore further the possible meanings of the associations made. This draws on Bion’s (1962a) ‘theory of thinking’. The ‘thoughts’ generated by contact with the image are unformed responses to the stimuli in search of a thinker to process or ‘think’ them. Bion (1962b) used the term 'beta elements' for unprocessed sensory data which are converted into thinkable ‘alpha elements’ through the ‘alpha function’ which is the ability to create meaning. Bion suggests that thoughts as beta elements precede the apparatus for thinking them. This develops in response to the pressure of thoughts on the infant psyche which must find a way to tolerate them rather than evacuate them. The reflection stage of the SPM is the apparatus or alpha function for thinking the thoughts generated in the matrix stage. The collective nature of the SPM means that thoughts are amplified in the matrix which then have more than one mind to

'think' or reflect upon them. This makes it a particularly powerful method for generating data.

3.3.3 Design and conduct of the study

3.3.3.1 Choice of research site

The child welfare and mental health sector was chosen as the site for the empirical study because it appeared from initial explorations (see section 1.4.3 above) to be a potential source of rich data. This sector of the human services, and in particular child and adolescent mental health services (CAMHS[21]) where the majority of the participants were based, can be considered an 'extreme case' which is chosen to exploit, "opportunities to explore a significant phenomenon under rare or extreme circumstances" (Eisenhardt and Graebner, 2007, p. 27). CAMHS may be considered an 'extreme case', and therefore an appropriate and productive location within which to study the research question, as they are currently the site for the introduction of a large number of initiatives, policies, procedures, targets and guidelines leading to significant changes to the way services are run, and to the way practitioners work. *Transformation* is a key rhetoric currently[22]. Technology is an increasing component of this transformation especially through the children and young people's improving access to psychological therapies programme (CYP-IAPT[23]). At the same time CAMHS and other child welfare services are the location for particularly powerful human dynamics, including individual and social anxieties, relating as it does to both children and to mental illness. It may be that this combination of factors make CAMHS a particularly strong site in which to view the interaction of humans and technology in dynamic tension, in ways that may be occurring, but are less visible, in other human services.

[21] The research uses the extended definition of child and adolescent mental health services (CAMHS) used by policy documents such as the Children's National Service Framework (2004). Variously defined as Tiers 1 to 4, or Universal, Targeted and Specialist CAMHS, this broad definition includes all services that have an impact on children's mental health and psychological well-being including early years settings, schools, primary health care, social care and youth justice as well as specialist community and in-patient mental health services. These services are provided by many agencies within the public, private and third sectors.

[22] See for example (https://www.england.nhs.uk/mental-health/cyp/transformation/, no date)

[23] (https://www.england.nhs.uk/mental-health/cyp/iapt/, no date).

3.3.3.2 Setting up and recruiting to the social photo-matrix groups

To recruit participants from within the chosen research site an email (see Appendix B) was sent out widely via the database of the Northern School of Child and Adolescent Psychotherapy (NSCAP) which includes all CAMHS in the north of England and other relevant services including social care and education. People who expressed interest were sent a participant information sheet and consent form (see Appendices C and D) and eight people confirmed they were able to attend on one of two dates. The aim had been to have up to 12 participants but it proved difficult to get people to commit to attend the groups which were held at the NSCAP premises in Leeds. A total of eight people proved to be sufficient to provide rich and diverse data with time for each individual to engage in depth with the topic and each voice being enhanced through interaction with others in the group. The aim was to gather thick data from a small number of people rather than thin data from a larger number. My view is that this method produced much better data than interviewing eight or more people individually would have done.

The sample of participants were from a range of different professions, levels of seniority, and service types, all concerned with aspects of the wellbeing of children and young people, including several different CAMH services. This can be considered a purposive sample (Bryman, 2012) selected with the research goals in mind and ensuring a cross-section of voices from the field. Table 1 provides details of the participants.

Table 1: Summary of research participants

Job Role	Type of Organisation	Gender
Group 1		
Consultant Psychiatrist	Adolescent Inpatient Services (also refers to working in a prison)	Male
Social Worker/Child and Adolescent Psychotherapist	Fostering and Residential Child Care Agency (previously CAMHS)	Male
Specialist Outreach Practitioner	Young People's Outreach Service, CAMHS	Female
Child and Adolescent Psychotherapist	Community CAMHS	Female

Group 2		
Social Worker/Manager	Local Authority Specialist Fostering Service	Male
Midwife/Trainee Child and Adolescent Psychotherapist	Community CAMHS	Female
Specialist Registrar in Psychiatry	Community and Inpatient CAMHS (refers to working in different services on rotation)	Female
Clinical Nurse Specialist	Community CAMHS	Female

3.3.3.3 The images used in the groups

The confirmed participants were asked to submit a photograph or other image "*representing their experience of 'technology' in their organization*"[24]. The images provided by the members were saved on a laptop in an anonymized form and then projected onto a screen as the basis for free association by the group. A summary of the images is given in Table 2 below including a sample quote from when it was shown on the screen. The actual images are shown in Appendix E. In the first group the four images from the participants (images 1-4) were used along with two extra ones (one from group 2 – image 5, and one chosen by a colleague – image 6). This was done due to a concern that there might not be enough 'material' for the group to discuss but this was unfounded so in group 2 four images were used, three images provided by the participants (images 7,8,10) plus one from group 1 (image 9) because one participant didn't send anything in time. Although different images were used in each group there was consistency in that they were responding to the chosen theme.

Table 2: Summary of images from social photo-matrix

Image	Description	Sample Quote About Image
Images from the Group 1		
Image 1	Desktop with PC and laptop and noticeboard behind	*I think I can identify with the dread. With the chaos of the paperwork and the… I guess the stilted-ness of the screens, really. An urgency but whether that's going to be translated in the technology that you're afforded.*

[24] This is the exact wording used in the Participant Information Sheet which has been paraphrased elsewhere in the thesis as 'technology at work'.

Image 2	Plastic model of brain	*It made me smile because you couldn't get a computer to do what the brain's capable of. And that makes me feel quite proud, really. It's the potential that it offers.*
Image 3	Desktop with pens and computer	*It feels like a regular workstation for somebody. With some personal effects, like you say, the Angry Birds and Freud's bust. There is a bit of ownership over the space.*
Image 4	Drawing with abstract figures	*I suppose my association is about this machine in the middle, it's sort of iron clad, is it? With rivets and… you know, what's that feeding the…? The child. You know? What's technology doing to the children?*
Image 5	Wires connecting screen, laptop and phone	*The mess. All these wires behind the desks. That don't get seen. Because often they're falling down behind the desk. So uncontained, in a way. Crossing over and hidden and…*
Image 6	Advertising image of laptop, phone and tablet	*Well, after all that, I feel extremely cynical about this picture. Which appears to sort of convey something very optimistic and… but very corporate, really, about the usefulness of technology and connectedness.*
Images from Group 2		
Image 7	Computer screen with image of electronic calendar	*I suppose maybe why it made me think about people being able to see what I'm doing and having to prove what I'm doing or justify why I've got an hour's break at ten.*
Image 8	Person taking picture of a collage	*And it can be taken to places that, it belongs somewhere, it belongs in a time, in a place between people and then it becomes a photograph on a phone and, where does it belong?*
Image 9	Desktop with PC and laptop and noticeboard behind	*And we're all made into these numbers, ID numbers on our devices so we're trackable.*
Image 10	Wires connecting screen, laptop and phone	*What a tangled web we weave. That needs a visit to IKEA for a wire holder.*

3.3.3.4 The researcher's role in the groups

The data produced by the research method is likely to be influenced by how the researcher interacts with the participants. One advantage of the SPM is that the majority of the interaction is between the images and the participants themselves, and the researcher can remain largely silent. In order to conduct the groups I had to make a number of contextual comments and these are presented here for the purposes of transparency.

At the start of the first group I asked the following question, in order to connect them with the subject, but decided not to do so in the second group as it potentially took their thoughts outside the research setting rather than allowing them to connect with the images:

> [*So just to start off with, then, you got the invitation to think about technology at work and to send in some kind of picture or image. I'm just interested in what your kind of initial response to that was. What did it make you think about?*]

Responses to this included:

> [*I accepted very readily. And then had real trouble trying to find a photograph. Or trying to find a picture or an image that would convey it. The more I thought about it, the more complicated my relationship with technology in the workplace seemed to be.*]
>
> [*And then I started thinking, like (a fellow participant), thinking about the pictures that you can come up with in your mind. Which might be all sorts of things. But actually getting them captured was different. That was actually much harder.*]

Capturing an abstract idea is not straightforward. There is no direct correlation between what is in the mind and what can be produced as a physical image. The task was clearly a challenge for them but this challenge led to thinking and discussion:

> [*Interesting, though. It made me think. And I talked to my colleagues about it as well. Because it starts off a discussion in the workplace as well, then.*]

I then put the first image up and said:

[*So we'll look at each one for about five to seven minutes, and I'll just leave it up there. And the idea is to sort of look at the photograph, respond to the photograph, rather than necessarily having a conversation between us. Although obviously you'll hear what other people are saying and that will spark thoughts. The connecting, linking conversation is really more in the second part. So I just invite you to… to think about it and respond*.]

At the start of the second session, after the break, I began with:

[*The idea of this second part is to just think about what we've thought about as the pictures have generated some thoughts, how that might reconnect them. What has it made you think about in relation to anything, but particularly in relation to the topic of technology at work, in the CAMHS/health and social care sector?*]

The responses to these two statements, and the images, form the data presented in Chapter 4 below. At the end of each group I asked:

[*I'm just wondering whether there is anything that's been helpful about this conversation actually? Helping you think about your work situation and your relationship to technology, or the use of the photographs*.]

This led to comments such as:

[*I think it is helpful. I'm sure on my way home I'll be buzzing. I feel a bit like I'll be thinking about everything everybody's said and I'll perhaps talk to my family about things, if that's alright, things that people had, ideas, the list goes on developing. Not about people in particular but these ideas*.]

[*I can't quite pinpoint the areas where, but it feels much more helpful than I maybe thought it would be, not at the start but in the preparation for it. As I go home and think about it over the next few days it's going to trickle down a bit*.]

3.3.3.5 The researcher's experience of the groups and the impact on the analysis of data

The researcher's role is partly one of providing containment to the participants in order to encourage free association to the images. This implies that the researcher will receive, and process, the projections of the participants. It is important therefore for the researcher to reflect on his or her subjective

experience of those projections on the basis that they can provide additional data about the participant's relationship to technology within the SPM. This is an important part of the psycho-social method (Hollway and Jefferson, 2013). The researcher is an active participant in the process and this emphasises the importance of reflexivity as we need to know about ourselves, our emotional involvement in the project and how this may influence the findings and outcomes. Part of the data collection was therefore to reflect on my own experience within the SPM as this may give an important indication of the unconscious at work in the groups, beyond what is consciously recorded in the transcripts.

Both groups were powerful experiences in which I felt I was working actively to listen to and think about what was being communicated, in the same way that I would in consulting to an organization. There were a number of significant moments during the SPMs in which I felt the participants were 'telling me' something; beyond what was actually being said. This was communicated by the strength with which certain comments were made and which generated a strong response in me. I subsequently described several 'eureka moments' in which key pieces of data emerged in the groups and which went on to form some of the central findings of the research. There was a strong feeling of 'satisfaction' in hearing the participants voice things that I may have been thinking myself or perhaps not even been aware of at that point. Even reading them back later, when writing up the thesis, certain comments in the data jump out at me as being emotionally charged, in ways that may not be immediately apparent from the text itself. Examples of this include:

> [*This says "work" to me. Very loudly. You know, this is a work station. This is work*.]
>
> [*The trouble is, it shunts down ... because they're paid to hold that anxiety, but what they do is shove it right down…*]
>
> [*I mean I love the fact that I can get home in time for tea sometimes and then I can do my notes at home*.]
>
> [*And also it really does murder teams as a kind of physical basis for what you're doing*.]
>
> [*I mean I use technology, I use it a lot and I do see the advantages of it and that's the world we live in, but when it starts to be talked about in this*

way about what's it there for, you know, all those devices, what are they there for?]

[*Like what colour is a conversation with a colleague? All those bits that might not be reflected in the diary.]*

[*The fact of actually doing this piece of work with the young people in itself wasn't the value, it had to be in some way be recorded, a bit like 'if it's not in the diary it doesn't count'*.]

[*And there's maybe a little sense of that here – that maybe out there, well it's not at all cut and dried, but in here it's all colour coded in nice blocks and it stands instead of reality rather than representing it. Perhaps.]*

There were also moments of irritation when I experienced the 'stuckness' of certain comments, such as:

[*And for children it's not a change, is it? It's always been there*.]

[*It made me smile because you couldn't get a computer to do what the brain's capable of… It's the potential that it offers*.]

It can therefore be seen that the subjective experience of the researcher in the groups directly influenced the selection of key moments in the data and how these fed into the coding and thematic analysis of those data. In reflecting on the codes that were initially identified from an open reading of the data (as described in section 3.4.1 below) it becomes clear that many have a strong emotional or subjective component. Examples include:

1. Metaphor of home, agile working, physical base
3. Value, feeling valued, investment
5. Expressions of anxiety

5a. Containment, holding

20. Food/feeding metaphor

That these have been highlighted as important themes in the data would suggest that this is, in part, due to the experience provided by the participants to the researcher of these topics and may therefore be the outcome of unconscious communication via projective identification. My own valency to receive those projections, in ways that others may not have, is also significant. I came into the research with my own views about technology and experiences of being in organizations that undoubtedly impacted on my willingness to give value to certain of the participants' comments over others. This is particularly

true in relation to issues of power, authoritarianism and discipline to which I can respond negatively. This is reflected in codes such as:

4. Intrusion, scrutiny, lack of trust
11. Loss of control, people as a resource, discipline
15. What kind of model/world is being envisioned, discourses

It can be seen that findings of the research are an outcome of both conscious and unconscious processes, and of a dialogue between what the participants' bring to the study and how the researcher receives what is brought. Further consideration of reflexivity is provided in section 3.5.1 below.

Having set out in detail how the research groups were arranged and conducted the advantages and limitations of the method will now be discussed. Further, *post hoc*, reflections and critique of the methodology are included in the concluding chapter (see section 6.5).

3.3.4 Critique of the research design

3.3.4.1 Advantages of the social photo-matrix

By promoting association over interpretation in the first stage Sievers (2007) argues it is possible to access unconscious understandings of the topic under investigation. The image is a symbolic representation of the picture-taker's relationship to the theme of technology at work comprised of both conscious and unconscious elements, including aspects that are influenced by early relations. Through the image these are externalised and available as an object to which participants in the matrix respond through free association, which in turn will draw on their conscious and unconscious relationship to the technological aspects of their organizations. The full range of the participants' understandings, feelings, beliefs and ways of relating to technology can be better accessed through this method. A psychoanalytically orientated approach recognises that the unconscious is not directly approachable and must be surfaced through techniques such as dreaming, drawing and free association. The images are carriers of data from the picture-taker but these cannot be interpreted rationally, instead the matrix supports the making of unconscious connections which emerge as thoughts which in turn require processing. In this sense, argues Warren, the photos are, "'transitional phenomena', occupying a

liminal position on the border between inside and outside, self and other." (2012, p. 90)

Photographs may be a way of expressing things that cannot be spoken about directly, possibly because they are too sensitive or complex to put into words. This may help to address Hollway and Jefferson's (2013) concerns about the 'defended subject' in qualitative research. The collective process of the matrix allows others to express, in response to the image, what might not be expressible, or even known, by the author of the image. This is why the anonymity of the images is important as it may also allow the author to speak anonymously about their own photo in a way that wouldn't be possible if they were identified. In the matrix it becomes simply an artefact that people can respond to. Bollas (1987, cited in Tchelebi, 2013) argues that pictures provide more insight into life than rational discussion, as they reveal part of the 'unthought known' of the subject's world. Emphasis is not on the content of the photo but the viewer's response to it and what meanings they attach.

The SPM is also a collective method. Warren (2012) points out that organizing is a collective process yet often research methods individualise each person's experience. Building on Armstrong (2005) she suggests that the organization-in-the-mind is an internalization of a collective phenomenon and therefore best explored in a collective where different organizations-in-the-mind can be surfaced and explored. In the case of this research it provided access to the different 'technologies at work' in the minds of the practitioners.

A group method has been chosen over individual interviews or participant observation because it allows for the interaction between a range of voices from different organizations subject to different pressures and priorities but all concerned with the wellbeing of children and young people. The SPM method provides the opportunity for connections to be made between individuals and for both convergence and divergence of views, all of which will produce rich data that is 'practice-near' (Briggs, Froggett, and Smith, 2013). Group interviews have been used widely in health research and are seen as being more naturalistic that one-to-one interviews (Green and Thorogood, 2009). By providing the researcher with some opportunity to take a position of observer

they have some of the advantages of an ethnographic approach as “a way of listening to people and learning from them.” (Madriz, 1998, p.363).

3.3.4.2 Data demonstrating the strength of the method

There are several comments from within the transcripts of the groups that point to the value of the method and how it helped to stimulate thinking and discussion. What becomes clear from the comments is how the method worked in generating new thoughts:

[*It makes me curious*.]

The containing frame allows for curiosity and open thinking and the making of links which spark new ways of thinking about the subject:

[*It’s quite phenomenal when you start thinking about it isn’t it?*]

[*So it’s really interesting, I didn’t really think about it*.]

The fact of it being a group with a mix of personalities, occupations and attitudes to technology is crucially important. The discussions were much more open and varied than the initial trial group that I undertook and thus produced large amounts of valuable data. There is a lot of evidence of data being generated out of a response to another person’s comments, both in agreement and disagreement, and of connecting thoughts that lead to more discussion:

[*Yeah, thank you, that’s what I’m trying to say. And I mean…*]

[*I think probably the opposite of that*].

There is also some evidence of group dynamics in a pressure towards a normative position:

[*Oh yeah, don’t get me wrong, I don’t want to come across as an eager appetite for like let’s go for all this.*]

My view though is this was limited and the method allowed the participants to have their own thoughts. There was also sufficient diversity in the group to provide a range of data from which conclusions can be drawn about technology at work.

3.3.4.2 Limitations of the social photo-matrix

Whilst it is argued above that the SPM has some of the advantages of the ethnographic approach it could not be described as naturalistic participant observation in that the practitioners’ interaction with technologies are not viewed directly in the work context. To do so in a CAMHS setting, or similar human

services, would be difficult for practical reasons due to ethical and confidentiality considerations. It might therefore be argued that the SPM is not an 'authentic' representation of technology in use. In practice, the constrained access to services may have made direct observation a less useful way of hearing the voices of practitioners and how they are relating to and engaging with the technologies. The important thing is to be explicit about the mediating role of the researcher and the research technology and how this may have influenced the data produced and its analysis. On this criterion the SPM has benefits over the individual interview as the group setting reduces the influence of the facilitator and gives more weight to the participants' opinions (Madriz, 1998).

The difficulty of arranging and moderating groups is raised as a challenge for researchers (Green and Thorogood, 2009) but, approaching the research as an organizational consultant, the group was a familiar way of working and more akin to consultancy practice than a one-to-one interview would have been. The various practicalities of setting up the group and, for example, recording and transcribing the discussions are potentially problematic and this is one reason for undertaking a trial group to test these processes. As a result of the trial it was decided to limit the size of each group to allow enough space for all to speak in depth and to ensure the voices were captured by the tape recorder.

A more significant criticism of the SPM is the potential for group dynamics to influence the associative process (in the matrix) and the sense-making process (in the reflective stage). Warren describes this as the 'situational context' of the SPM including how, "immediate social dynamics influence viewing" (2012, p. 93). Clearly the process of collective viewing is different from private viewing, not least in the increased likelihood of people censoring their thoughts. Free association in this context is unlikely to be as 'free' as in an ongoing analytic space. Warren however criticizes Sievers for trying to minimize the influence of group dynamics, whereas from a research perspective it is the group interactions and amplifications that make collective viewing a valuable method. Although it is not the explicit role of the facilitator to comment on group process (Mersky, 2012) it is important to not deny its existence and therefore its influence on the resulting data. Rather than attempting to minimize or downplay the significance of group process it is better to acknowledge that responses to

images will be 'socially shaped' and reflect dominant discourses and power relations.

3.4 The Process of Data Analysis and Developing Themes

The previous sections have described the method by which research data were generated. This section sets out the process through which the 'raw data' from the social photo-matrix sessions were organized and then analysed to develop the themes that are presented in Chapter 4. The development of themes is guided by Ryan and Bernard's (2003) survey of techniques for theme identification from across the social sciences and from different theoretical traditions.

3.4.1 Coding the data

The SPM sessions were tape recorded and professionally transcribed. Each recording was listened to whilst reading the transcripts in order to check for accuracy and to include any subtleties, such as emphasis, that might have been missed. This also helped to get a 'feel' for each session by listening in detail to the people speaking. The participants had been assigned numbers by the transcriber so these were used to maintain anonymity. The transcriptions became one large dataset of 24,000 words in which two mixed groups of practitioners responded to 'technology at work'. This included assuming that *all* comments in the data, whatever their content, were in some way connected to the theme of technology at work as they were a product of the SPM and a response to the images on that topic.

The dataset was read twice initially and statements, words or ideas that stood out were highlighted. Additional comments were written in the margin where the text prompted particular thoughts or links to literature or consultancy practice. At this stage the focus was on understanding and drawing out what the participants themselves were saying about their responses to technology in the context of the SPM. As discussed in section 3.3.3.5 above, the selection of key moments from the groups as being significant data was influenced by the subjective experience of the researcher in the groups. This can be thought of as a process of projective identification in which the participants locate particular feelings and unconscious experiences in the researcher which then

influence how they perceive and interpret the data. It can be seen that the first codes to emerge from the data (such as, 3. Value, feeling valued, investment, and 4. Intrusion, scrutiny, lack of trust) are particularly related to the emotional experience of the participants and therefore ones in which projective identification may have been significant.

The dataset was then read again and analysed using several of the techniques for thematic analysis identified by Ryan and Bernard (2003). Thematic analysis is commonly used in health research to present the key elements of participants' accounts and is a good basis for more sophisticated qualitative analysis, including how themes relate to each other and to what is known within existing literature (Green and Thorogood, 2009). Ryan and Bernard say that, "Without thematic categories, investigators have nothing to describe, nothing to compare, and nothing to explain." (2003, p. 86). They identify several techniques that they found to be in common use amongst qualitative researchers. The ones that were felt to be especially relevant and useful in analysing the data for this study are shown in Table 3 below, along with examples from the data.

Table 3: Techniques for identifying codes

Use of Techniques	Examples in Data	Sample Data
Repetitions Topics or words that recur in the data and across several participants.	Repeated words related to 'value' and 'investment'. Repeated expressions of emotion such as 'intrusion' and 'dread'.	[…*but then there's the human relationships, which is, it's almost that investment*] [*I am just thinking that when our systems go down, I feel completely helpless*]
Metaphors Reveal further data about how participants think/feel about topic through the use of metaphor.	Metaphors relating to 'home' and to 'food/feeding'.	[…*and it is an insatiable machine, though isn't it, because you are inputting things in it, you're feeding it constantly and it's insatiable because it's never going to get full*]

Similarities and differences Exploring how participants discuss a topic in different ways to highlight issues being struggled with.	Similar responses to electronic diary. Differences about technology changing the brain.	[*And like you say, you get your head around it and then it changes anyway*.] [*No. I think probably the opposite of that*.]
Linguistic connectors Words which might point to causal connections in the minds of participants show a complex picture being worked through.	Words or phrases such as: 'but, 'however', 'in a sense' and 'as well as'.	[*On a brighter note, they might be linked up as well*.]
Theory related material Where participants themselves theorise about what is going on. Shows how participants understand or interpret topic.	Theories used by participants include: 'boundaries', 'projection', 'containment', 'anxiety'. All draw on psychoanalytic theory.	[*What you're talking about is something really different because it's not about containment, it's about projecting something.]*

(Adapted from Ryan and Bernard, 2003)

The product of applying these techniques was the development of 26 'codes', which describe the major thematic elements of the text. These are shown in Table 4 below. The process by which these codes were gathered into themes is then described.

Table 4: Identified codes used for thematic analysis

1. Metaphor of home, agile working, physical base 2. Internal contradictions - ambivalence, dissonance, pros and cons 3. Value, feeling valued, investment 4. Intrusion, scrutiny, lack of trust 5. Expressions of anxiety 5a Containment, holding 6. Disagreement between participants - range of responses 7. Technology changes relationships,	12. Thinking, complexity, messiness 13. Boundaries 14. Projection, defences 15. What kind of model/world is being envisioned, discourses 16. Workload shifted to individuals, change in nature of work 17. Technology as extension of human desire /drives 18. Entanglement, enmeshment 19. Other expressions of emotion 20. Food/feeding metaphor

connections, conversations 8. Physicality, tactile, body, materiality, aesthetics 9. Process of change and development in technology, digital immigrants 10. Concrete-abstract, fixed, 2D/3D, surface, levels 11. Loss of control, people as a resource, discipline	21. Computers not working 22. Computer agency, reduction in human agency 23. Increase in human agency, reclaiming 24. Opening up, play, creativity – opposite of 10. 25. Reduction, counting, measurability, quantifiable 26. Distance metaphor, critical distance, remaining adult

The codes were applied consistently across all the data, so for example, Code 20 (Food/feeding metaphor) may have been suggested by a few references in one part of the data but the process of coding assesses the extent to which it is present across the dataset and begins a process of sorting the data that eventually produces themes as described in the next section. Line by line coding was undertaken which meant that within each statement by a participant there might be multiple codes. The next step was to turn the hand written codes and notes into a table with the data in the first column, codes in second and notes/annotations in third. A sample of the data at this stage is provided in Appendix F. Using the highlighter function in Word each section of text was colour-coded to link it to its code and also to any comments that were specifically about that piece of coded text.

3.4.2 From codes to themes

The close reading of the data produced further associations, connections and questions related to the research topic. It also challenged the researcher in several ways and led in unexpected directions. For example, the images and discussion were more focussed on computer hardware and information and communications technology than expected. This, helpfully, narrowed the focus of the analysis from a broad 'catch-all' meaning of technology which had been present in earlier discussions. The key step in the analysis was to combine the long list of codes into seven themes labelled A to G as shown in Table 5 below. The themes were generated by cutting and pasting all of the coded data into separate documents containing all of the data coded to that theme. Where

possible, sentences or sections of data were kept intact so that particular words or phrases could be presented in context.

This was a difficult process because of the 'multiplicity' of each code, that is, it could potentially 'say' many things so 'fixing' it within one thematic category meant imposing one meaning of that code out of its many possibilities. It is at these points of making choices that the researcher needs to be particularly alert to the reflexive impact of their own prejudices and needs that they bring to the data. These are inevitably personal choices and another person might make different choices. However, by presenting this process the aim is to make it as transparent as possible and enable the reader to judge whether the choices were 'reasonable' and a proper reflection of what the participants in the groups were conveying. The seven themes that emerged are presented in Table 5 along with the codes from which they are formed.

Table 5: Themes and codes

Theme	Codes That Form Theme
Theme A: Practitioner attitudes to 'technology at work'	**2.** Internal contradictions - ambivalence, dissonance, pros and cons **6.** Disagreement between participants - range of responses **9.** Process of change and development in technology, digital immigrants
Theme B: The material entanglement of humans and technology	**8.** Physicality, tactile, body, materiality, aesthetics **18.** Entanglement, enmeshment **21.** Computers not working **22.** Computer agency, reduction in human agency
Theme C: The role of technology in anxiety and defences against it	**5.** Expressions of anxiety **5a** Containment, holding **14.** Projection, defences **19.** Other expressions of emotion
Theme D: Technology as an actor in the organization of human services	**1.** Metaphor of home, agile working, physical base **7.** Technology changes relationships, connections, conversations

	16. Workload shifted to individuals, change in nature of work
Theme E: Discourses that inhere in the technology of human services	**3.** Value, feeling valued, investment **4.** Intrusion, scrutiny, lack of trust **11.** Loss of control, people as a resource, discipline **15.** What kind of model/world is being envisioned, discourses **17.** Technology as extension of human desire /drives **20.** Food/feeding metaphor
Theme F: Technology's role in processes of transformation.	**10.** Concrete - abstract, fixed, 2D/3D, surface, levels **25.** Reduction, counting, measurability, quantifiable
Theme G - Sustaining abstract thinking and creativity in technology use.	**12.** Thinking, complexity, messiness **13**. Boundaries **23.** Increase in human agency, reclaiming **24.** Opening up, play, creativity – opposite of 10. **26.** Distance metaphor, critical distance, remaining adult

Having sorted the data into themes the datasets were read in detail again, with further notes made in the tables about how the data linked to the theme and in turn provided evidence of how the theme related to the research questions. The themes and the coded data were then gathered into a form that could be presented. The intention in Chapter 4 is to present as much of the original data as possible for the reader to see how it has been used and to provide a visible trail from the SPM groups to the thematically analysed and presented data that is then taken into the discussion of findings.

This section has shown the process by which the researcher engaged with the 'raw data' from the SPMs in order to develop and present a meaningful thematic analysis of the transcripts from the mixed groups of practitioners about 'technology at work'. This process has been described in some detail as it is central to the overall research project, and in order to make visible to the reader the choices and decisions made by the researcher during the transformation of data into themes, and hence a presentable narrative. This transformation

involved a shift from concrete to abstract that was necessary in order to generate meaning, that is, to make *sense* of the data. This was done in a way that retained a clear path for the reader to follow from data to theme and back again. It can be demonstrated not only *what* sense was made of the data but also *how* that sense-making occurred. This provides the opportunity for the reader to judge the credibility of the choices made by the researcher and also to derive their own meanings from the data as and where relevant.

3.5 Further Methodological Considerations

3.5.1 Reflexivity and validity

There is an established view in the positivist tradition of quantitative research, and some iterations of qualitative methods, that, "research subjectivity, emotional and participatory involvement in the world of the researched was seen as a hindrance to scientific study" (Clarke and Hoggett, 2009, p. 3). However, there is an increasing view, especially within psychoanalytically informed qualitative research, that, "subjectivity and self-understanding are critical to well executed fieldwork" (ibid, p.3). Recognition of the researcher as participant in the research process leads to a reflexive foregrounding of the researcher's own preconceptions and unconscious biases. The starting point of reflexivity is to reject the idea, central to the phenomenological method for example, that researchers are able to 'bracket off' their own views about the phenomena under investigation (Creswell, 2013). Even if this was consciously attempted it is known from psychoanalysis that unconscious desires, drives and assumptions will influence how researchers address the topic (Hollway and Jefferson, 2013). We cannot help but be influenced by earlier experience and to pretend otherwise opens up the researcher to accusations of naivety: "The researcher who claims to have successfully bracketed off her own views so that they do not influence the data is deluding herself and her readers" (Rolfe, 2006, p. 10). The researcher's influences in undertaking this study were described in the opening chapter and further reflected upon in section 6.5 below. The impact of the subjective experience of the researcher in the SPM groups, and how this influenced the interpretation and analysis of the data, is reflected on in section 3.3.3.5 above.

The approach taken in this thesis to reflexivity and validity is to apply the same stance applied to the object of study; that all forms of technology mediate processes, whether these be organizational or research. Both the researcher and their research technology will mediate the process and outcomes of the study. Drawing on the performativity approach, research methods not only represent the object of study but help produce, constrain and enable their object (Barad, 2003; Law, 2004). Barad compares this to the quantum physics of Neils Bohr – what we observe and how we observe it are inseparable. The visual research technology of the SPM acts on the world as we employ it. Therefore, the considerations in this thesis about the role of technology in organizing also apply to the research process and research technology (i.e. method) itself. For example, Atkinson and Silverman (1997, cited in Sandelowski, 2002) say that the interview should be considered a technology of biographical construction. The data are the product of the application of the technology in the interview room at a particular moment and no more. The data are the products of a particular social interaction that constructs experience rather than reflects it.

Whilst this is a specific criticism of the qualitative interview the same consideration needs to be applied recursively to data produced by the technology of the SPM. The matrix produces data from 'in the room' responses to representations of material technologies and the interactions in that space that lead to the generation of meaning for the participants. It cannot be claimed these are the same as the 'authentic' experiences of workers in practice. The data relate to the participants' interaction with the photos, and each other, in the room rather than providing 'facts' about the use of technology in practice. However, their responses, informed by their own practice experience and ways of making sense of technology, may tell us something about our sociomaterial world. Equally, the researcher's biases in selecting participants, wording the information leaflets, conducting the SPM and, most importantly, interpreting and presenting the data (as described above), need to be acknowledged as generating a particular set of outcomes.

The rejection of positivist notions of rigour and detachment leads, not to a position of extreme relativism in which 'anything goes' and all judgements are equally valid, but to a view that different forms of research have equal claims to

validity and that the criteria for judging each will be different. Quantitative methods, such as the randomised control trial (RCT), and qualitative methods, such as the social photo-matrix, both have the right to be considered valid but the criteria for judging each will be different and, in particular, using the criteria of one to judge the other is meaningless. Unfortunately, because of the dominance of scientific method in health research (Rolfe, 2006) this is often what happens, to the detriment of qualitative research. However, the reader of any research still needs a way of discriminating between 'good' and 'bad' research, whether that is with an RCT or qualitative study. The argument is that these criteria must reflect the approach to knowledge generation relevant for each discipline. Rolfe (ibid) argues that researchers require practical expertise in both the research process and the topic being researched. A strength therefore of this particular thesis is the congruity between the research method, the theoretical understanding of technology, and the organizational practice of the researcher. For Rolfe, "research is *practice* with all that implies, rather than merely a procedure" (2006, p. 12, *emphasis in original*).

Drawing on narrative analysis (Riessman, 1993) it can be seen that the researcher 'narrates' a particular version of the 'truth' of the situation. The task is to present the 'story of the data' with sufficient clarity, including offering raw data, so that the reader can judge how and why *this* story has been told using *this* data and whether they think it represents a legitimate, truthful, valid or coherent account, depending on which of these criteria they choose to use. Riessman (ibid, pp. 64-68) offers the following ways of approaching validity:

- Persuasiveness/Plausibility – Is the interpretation reasonable and convincing and is it supported with evidence from the participants' accounts? Are alternative interpretations of the data considered?
- Correspondence/Coherence – Are the researcher's interpretations recognizable as adequate representations of the participants' own sense-making?
- Pragmatic use – To what extent will the research contribute to practice, or have the potential to?

Correspondence between 'method of research' and 'object of research' would seem to be a key test for the validity of the resulting outcomes. For positivist researchers validity is guaranteed by close adherence to method, so judgements are made on the rigour of the methodology rather than the outcomes. Findings are only seen to be valid if there are no flaws in the method by which they are produced. If, as above, method is viewed as a research technology, then a reflexive application of ideas of technological agency and entanglement must be similarly applied to the method of this research. Therefore a rigid adherence to a method developed elsewhere, for other purposes and not in relation to the specific research question, is rejected in favour of a creative process led by the researcher's interests that emerge from organizational practice, and from an open engagement with the research participants and the data produced: "The researcher who presents her method as though it was conducted 'by the book' in a trustworthy fashion is not to be trusted" (Rolfe, 2006, p. 10).

The preceding sections have demonstrated how the particular approach to researching technology in human services has been developed in response to new understandings of the meaning of technology and its entanglement with social practice. Using a method designed for one purpose and transposed into another context would leave the researcher trying, and failing, to apply a misaligned method to the very particular circumstances of the question at hand. As a result, "[the researcher's] imagination is restrained and even his language will cease to be his own." (Feyerabend, 1970 cited in Rolfe, 2006, p. 9). This thesis has tried to develop a language and approach that is relevant to the circumstances of studying the role of technology in the human services.

3.5.2 Ethical considerations

As well as being a methodological consideration, how the research technology *performs* the data into being it is also an ethical issue. The research is an intervention that acts on and affects the world it is studying – participants will be affected by their experience, possibly challenged. Any aspects of research that involve engaging with people require consideration of the impact of the researcher on the subject, including whether the perceived outcomes justify the research intervention. A risk analysis of the research was undertaken and

steps taken to minimize the risks to both researcher and participant. This included a careful selection of the setting where the groups were conducted and procedures should a participant become upset or disturbed. The researcher is an experienced organization consultant and group facilitator and the groups were run so as to provide a containing environment and minimize the potential for participants to be disturbed emotionally by the research process. Full information was provided in advance to participants and their informed consent sought. All aspects of the research were submitted for approval by the University Research Ethics Committee and was also subject to R&D approval from the NHS Foundation Trust which is the researcher's employer.

A further ethical consideration was that those who took part in the SPM should be active research participants. Broussine rejects the positivist notion of doing research *on* people by assuming, "that the researcher/research subject relationship is an active, participative and collaborative one" (2008, p. 4). In the SPM the members both select the photos and interpret them so knowledge generation can be seen as participant rather than researcher led. The shared method changes the power relationship between researcher and researched as each participant becomes a researcher taking their photos and responding to what other participants bring. This shared process may increase the trustworthiness and credibility of the research. It is also congruent with the organizational consultancy method which is participative rather than directive.

3.6 Summary of Chapter

In this chapter the design of the research process, and how this was undertaken, has been set out. It was established that the study is situated within a qualitative episteme that values a relational, inductive and interpretive approach to knowledge generation. This prioritises creativity and a reflexive engagement of the researcher with the topic of study, in contrast to notions of rigidly following pre-constructed methods.

Flowing from this approach, it was argued that the methodology required to address the identified gaps, in the theory and practice of consulting to technology in organizations, was one that enabled the capturing of data relating to both a psychoanalytic understanding of human subjectivity, and the action of

technology as a material object in co-creating what is understood as the social world of the organization. The social photo-matrix was then proposed as a method meeting these criteria and as a way of generating data that may provide ways of understanding technology's role in mediating organizational processes. The advantages and limitations of this method were discussed. Finally, the method through which the data were analysed to produce thematic categories was presented and critiqued. The outcomes of this process are presented in Chapter 4 in which a number of findings are identified within each theme, which are then discussed in Chapter 5.

Chapter 4. Presentation of Data and Findings

> You realize the sun doesn't go down
> It's just an illusion caused by the world spinning round.
> (The Flaming Lips, 2002b)

4.1 Introduction

In this chapter the themes and findings identified in the data are presented. In chapter 5 the findings will be discussed and related in detail to the research question and to the literature presented in Chapter 2. The current chapter is structured around the seven themes (A to G), each of which contain a number of specific findings. In each section examples from the data are given alongside explanatory text which shows how the data support the finding. Data drawn directly from the transcripts of the social photo-matrix are formatted as follows:

> [*I suppose especially in the young population that text messaging and emailing are powerful.*]

The presentation of data begins with *Theme A: Practitioner attitudes to 'technology at work'* in order to place the data in the context of a particular group of professionals with their own specific views and feelings about technology. The theme shows that they are challenged by developments in technology both in relation to the organization they work in and their relationships with service users. They bring to this a range of responses that are both positive and negative but also reflect a view of technology as either a developmental process or as something that is fixed and immutable.

In *Theme B: The material entanglement of humans and technology* the tangled network created by the interaction of people and the technological devices around them is highlighted. The data show that the physical presence of technology in organizations means that it becomes an actor in the network of relations. This leads practitioners to be dependent upon those actors, which are felt to be fragile, and the dependency fails.

Issues of risk, anxiety and other emotions present in the human/technology network are developed further in *Theme C: The role of technology in relation to*

anxiety and defences against it. This theme emerged from the coding of data showing repeated references to emotions generated by 'technology at work'. It can be seen that the participants are working in stressful environments where issues of risk are prominent. Technology brings a new dimension to the work context in the way it facilitates the projection of anxiety into the practitioners from clients and their families, and also from managers and the wider organization.

Themes D and E examine in more detail the agency of technology. In *Theme D: Technology as an actor in the organization of human services* it is demonstrated that technology has a number of particular properties that mediate the organization of services, relationships with clients and the work of practitioners. In *Theme E: Discourses that inhere in technology in the human services* the 'black-box' of technology is opened. This theme provides evidence that technology is not neutral in the power relations in services. 'Built in' to technology are particular discourses or models of the world that influence the ways in which reality is perceived when it is mediated by that technology.

Theme F: Technology's role in processes of transformation sheds light on the mechanisms by which technology mediates between the dimension of the concrete, everyday material world, and the abstract world of data, concepts and models. Evidence is presented of technology's role in the process of abstraction in which moments from the continuing flow of events are selected as a representation of reality. These abstractions are seen to have different properties to the events they represent and have a great 'currency' within the discourses observed in Theme E. As a result they are acted on *as if* they were real.

Theme G: Sustaining abstract thinking and creativity in technology use puts forward ideas emerging from the data about how it might be possible to develop a healthier relationship with technology in which the abstract and the concrete are not mistakenly conflated. By finding ways of engaging creatively with technology it may be possible to maintain open and flexible thinking where abstractions are seen as helpful concepts that inform, but do not replace the reality of services.

4.2 Theme A: Practitioner Attitudes to 'Technology at Work'

Codes from which this theme is comprised:

2 Internal contradictions - ambivalence, dissonance pros and cons

6 Disagreement between participants - range of responses

9 Process of change and development in technology, digital immigrants

This theme presents evidence from the data about these particular practitioners' relationship with technology. Whilst claims cannot be made that they are representative of all staff, the participants exhibit a range of responses that provide information about different ways in which technology, and the human-technology relationship, is experienced. Not only are there differences between participants in the groups, but individuals themselves exhibit mixed feelings and shifting positions in their views of technology. Two continuums of response are presented which can be summarised as 'positive to negative' (Table 6) and 'developing to fixed' (Table 7).

Finding A1: Practitioners face a 'double challenge' in relation to technology

Participants described different types of technology used at work including the patient record systems Carenotes, SytemOne, Lorenzo and RiO. These were considered [*clunky*]. They use portable laptops, for accessing patient notes from home, and mobile phones. The information systems and the laptop are for capturing and accessing service data, whilst the mobile phone is also used to communicate with service users. These two different orientations provide a double challenge to the practitioners:

> [*I suppose especially in the young population that text messaging and emailing are powerful.]*
>
> [*It's hard enough trying to get our heads around Lorenzo and RiO or whatever you happen to use! ((Laughingly)) But it is important, I agree, to engage with it*.]

As well as 'getting their heads around' work-based systems they also have to engage with the technological world of young people such as Facebook, Instagram and Snapchat. Technology is a powerful tool that they need to

understand. The participants use the terminology [*digital migrants*[25]] in relation to themselves whereas the young people they work with are described as [*digital natives*]. There is a real challenge for them in communicating across generations when the younger service users relate differently to technology than do the practitioners:

> [*Digital natives, yes. You're born into it and then if you're a migrant, as I am, then you're trying to keep up and never quite getting there. There's a challenge to engage with it as contemporary clinicians, contemporary people working with children and young people*.]

It is a challenge but it has to be engaged with because of the implications for service provision. This is similar to the situation for parents, which may be why practitioner/parent parallels are evident in the data:

> [*And as parents actually, it's a huge challenge to those of us who are parents to somehow try and keep abreast of what is going on and how young people are accessing and communicating, and what they're accessing and communicating with each other*.]

Just as with parents and their children there is risk involved in being less knowledgeable about technology than the clients, especially where the clients are emotionally and psychologically disturbed, which makes communicating effectively with them both important and complicated.

Finding A2: Practitioners demonstrate a range of responses to technology

The participants can be seen to be struggling with a range of thoughts and emotions in relation to the challenge of technology, and often trying to see both sides. Examples include:

> [*So it's cost and benefits isn't it.*]
>
> [*So sort of positives and negatives really*.]
>
> [*There's some useful stuff…*]
>
> [*Double edged sword*]
>
> [W*hich is kind of like against the thrust of what I was saying before*.]

Their views are fluid and may move between positive and negative in the same sentence. A range of different responses and attitudes to technology is evident in the data. The way people respond to technology is informed by the 'lens' they

[25] The terms 'Digital Natives' and 'Digital Immigrants' (not 'migrants' as the respondent says) were coined and popularized by education consultant Marc Prensky (2001).

use to look at it and this comes out strongly in the data as they view the images. The different responses evident in the data have been summarised in Table 6.

Table 6: Range of positive and negative responses

Response Descriptor	Example from Data
Enthusiastic engagement	[*I'm very interested in the positive application of technology and the helping professions in health and social care and in psychotherapy*.]
Progressive engagement	[*So a year ago we weren't using it really and now it's becoming really quite central to what we do*.]
Resistant	[*On the other hand I also find myself thinking that recently for a few weeks I lost the ability to log on at home, I just misunderstood the new instructions, and I actually resisted kind of learning how to do it properly*.]
Nostalgic	[*I find I miss things that I wouldn't have missed in a paper file, because a paper file you flick through it methodically, whereas on the computer, unless you know how to navigate the screen*.]
Saboteur	[*I love that idea and I love the idea of Anonymous and hackers, and I think go for it, someone has to do it, ((laughter)) because I can't do it*.]
Hatred	[*Our hate of technology unites us. ((laughs))*]
Out of touch	[*I mean things like my son's got something called I think Instagram?*]
Digital Immigrant	[*And it just feels so alien to me*.]
Confused	[*Busy. I can't work out what that is*.]
Overwhelmed	[*And I can feel myself getting, trying to be, I can see the good, I can see the good, I can see the good, but actually that's a lot*.]
Unsettled	[*That are the… I was young, I like to think, not that long ago. And we didn't have computers in anything like the way we do now. And now we do. And it's a little bit unsettling*.]

There are examples of similar responses in the participants' description of services' engagement with technology. Two group members provide conflicting descriptions of their services' response to technological innovation:

[*We're actively discouraged from using any technology as we've been passively aggressively banned from using our work mobiles to communicate with adolescents because it doesn't feel safe and it's risk averse.]*

Whereas:

[*I think probably the opposite of that. I think we use quite a lot of technology and it feels that the Trust are very keen to proceed.*]

Finding A3: Practitioners hold different positions in relation to the possibility of change

The responses evidenced above could be thought of as ranging from positive to negative, or perhaps for and against. There are other responses within the data that might sit on a different continuum where the extremes are a view that the human-technology engagement is a process that develops over time and, at the other end, it is fixed and development is not possible. These different responses have been summarised in Table 7.

Table 7: Range of developmental and non-developmental responses

Response Descriptor	Example from Data
The human brain has functions that technology cannot emulate.	[*I just think… it made me smile because you couldn't get a computer to do what the brain's capable of… It's the potential that it offers*.]
Humans are fixed at a primitive level and won't be changed by computers.	[W*e will always revert back to… we will be the vine that takes over the building, we have to, because it's how we are. We're not going to grow into computers, we are always going to stay human, and so those functions are going to remain exactly the same.]*
Technology is fixed, as it is, not developing. Changes have already happened.	[*And for children it's not a change, is it? It's always been there*.]
The development of technology will overtake humans.	[*I've quite a worried sense that the capacity of the brain will get lost with the advances of technology*.]
Technology has changed the way we work and live.	[*But it's funny, because I was thinking, I've often joked and called myself Doctor Google, because I don't remember anything anymore, I just Google it*.]

Humans are giving up functions to technology.	[*I don't remember any phone numbers, but as a child, I remembered everyone's phone number and I never remember them now. My brain has changed in that way*.]
Humans will continue to develop in concert with technology.	[*I think that we are made by the way we communicate*…(what a participant said about) *there being some essential basis of human life which is returned to and which is unchanging. I see us being made by our communication, to some degree*.]
We are changed by technology but with mixed feelings.	[*And that in itself, being sort of exciting, actually, as much as really scary and worrying*.]
Humans develop technologies that in turn change humans.	[*I think that our minds are very different minds from pre-Gutenberg minds and if we didn't have texts*[26] *I think things would be different.*]
Technology is subject to developmental change.	[*Mm. Yeah. Ditto. And development as well with the computers. You know? Into a laptop. And… sort of IT development.]*
Technology as an ongoing process.	[*Yeah, and 30 years ago, the thought that you could have a clinical meeting of people around the world would perhaps seem as improbable as having therapy on Facetime on your phone*.]

The data in this table show that it is possible to see that both people and technology can change and develop, or both can be fixed and rigid.

4.3 Theme B: The Material Entanglement of Humans and Technology

Codes from which this theme is comprised:

8 Physicality, tactile, body, materiality, aesthetics

18 Entanglement, enmeshment

21 Computers not working

22 Computer agency, reduction in human agency

This theme demonstrates the reality of the human-technology entanglement in the services in which the participants work. It shows the significance of technological 'devices' as the material manifestation of technology in the

[26] There is an interesting ambiguity here in the meaning of 'texts'. Does it refer to the printed texts of the Gutenberg press or to text messages (SMS) sent by mobile phone?

workplace, and that the participants have a relationship with those devices that is both emotionally and physically connected.

Finding B1: Human services work is entangled with the material artefacts of technology

Work is represented by an image of a computer (Image 1); the physical 'work station'. This demonstrates that technology use and the work environment are tightly connected in the mind of the participant:

> [*This says "work" to me. Very loudly. You know, this is a work station. This is work*.]

There are a lot of data from the participants suggesting that they recognise their tangled relationship with technology:

> [*And the wires all crossing over each other. Possibly getting tangled. I don't know*.]

Artefacts, including the material interface with technologies (keyboard, mouse, screen, phone) are part of a network that facilitates relationships:

> [*And how the physical things facilitate the relationships with the other human beings in the place where you work*.]

Technology connects staff to each other, and to clients, and feelings can get 'mixed up':

> [*A bit like the wires on one of the pictures, it all gets very, very mixed up. You're not sure who's plugged into where or whose is that, is it mine or is it yours, and how all that gets interpreted and downloaded and understood, I suppose*.]

The material presence and aesthetics of technology matters to humans:

> [*I suppose it strikes me looking like that just how functionally ugly those machines are. And that really nothing at all has been put in to making the machine that one lives in such close proximity with attractive in any way, shape or form*.]

There is a longing for something human, a connection with something that isn't artificial, that has depth and meaning, not a 'veneer':

> [*I found myself looking at the desk, which is probably made in some cheap factory, but a longing for it to have been a handmade desk out of a tree somewhere in the wood…But longing for that human idea of*

somebody making something there. I know it's probably not that. It might be a veneer or something. But there's a longing for that.]

Human relationships in the work environment are facilitated by machines which become an actor in the tangled network but in doing so create something artificial.

Finding B2: The body connects practitioners to the network

References to bodies in the data show that the participants have an embodied relationship to technology. The practitioners bring their bodies to work and not just their minds. Viewing the image of the brain (Image 2) it is said:

[*I mean, it's isolated, isn't it? It's kind of disconnected from the body. You know? It's a kind of mind on its own, isn't it*?]

The 'mind on its own' is disembodied; it needs to be connected to the physical world and technology though the body. This is most evident in teenagers where:

[*Their phones are like a little extension of them*.]

The participants describe the importance of connecting physically with clients in order to 'feel' their mental state:

[*I couldn't assess someone's mental state with Skype.]*

[*You can't because you have to use your body*.]

[*You have to feel something*.]

Technology also has a material effect on the bodies of the participants. This comes out in the drawing (Image 4) which evokes strong feelings about bodies being trapped in a mechanical, artificial structure that distorts humanness:

[*It makes me feel all the bodily, lively bits are sort of trapped in there. With this angry face at the bottom and the bodies in the test tubey type things or… and then I'm not sure what this sort of couch-like mother with screws in her… or something like… she's simply mechanical or technological. I don't know. Like a lamp-like face. It's all very artificial*.]

This is a powerful description of a primitive relationship to technology. The bodies are not held or contained by the mechanical mother, they are 'trapped':

[*And everything seems distorted as well. Like some body parts are not quite sure what they are. You know? They look a bit like a tongue, a bit like a breast, a bit like a penis, but it's all a bit distorted*.]

This artificial relationship distorts the body and its 'lively bits'. Tongue, breast and penis may stand for key elements of what it means to be human.

Finding B3: Practitioners become dependent on the network

For the participants there is increasing dependency on technology and a reliance on it for 'life', including storing knowledge and making connections:

> [*Reminds me a bit of a life support system. I am just thinking that when our systems go down, I feel completely helpless. I can't access the notes. I can't write emails. I can't correspond with colleagues*.]

By giving life, technology also traps and controls that life. As the agency of technology comes to the fore this impacts on human agency which is felt to be diminished:

> [*There's a missing agent from… you know, I guess the worker. So this is the workplace or the work stuff. The stuff of work. But the worker is absent. So that kind of absence of human. The human aspect is missing. This is the technological aspect. Or the physical technological aspect. But they're not far away. Their cup's there. The fluid's in the cup.*]

For this participant the image (Image 10) represents an absence of human agency in a technological world. Technology and the workplace become synonymous and the human is marginalised, represented only by the coffee mug. The affordances of technology bring with them benefits but also risks:

> [*So, on the one hand although having all those… being able to access electronic records on patients is much better in terms of ease, and I suppose one definition of safety, but it doesn't feel comfortable that one feels so helpless when you can't do it*.]

The technology of work is seen to bring distractions with it and is felt to prevent constructive, or task-oriented, work:

> [*I have a work mobile, it doesn't work at the moment, and a personal mobile that I tend to use for work stuff as well, but then I can get distracted by my phone. It's a piece of technology that prevents me from being particularly constructive*.]

Being dependent or reliant on something always entails giving up some agency to it.

4.4 Theme C: The Role of Technology in Anxiety and Defences Against it

Codes from which this theme is comprised:

5 Expressions of anxiety

5a Containment, holding

14 Projection, defences

19 Other expressions of emotion

The participants are working in stressful environments where issues of risk are prominent. Technology is seen to facilitate the transmission of anxiety into practitioners from clients and also from managers and the wider organization. Practitioners in turn may use technology as a defence against that anxiety. There are multiple examples in the data of anxiety being evoked by the images of 'technology at work'. There are also words that express other emotions including: sinister, dread, disgust, frustration, ominous, despair, paranoia.

Finding C1: Technology generates anxiety and facilitates its projection into practitioners

This is a typical example from the data of an anxious response to technology by one of the participants:

> [*I just look at it and I start to get a bit of, there's a bit of anxiety in me because I start to think oh my god what do I?…*]

As well as their own uncertainty towards it, the perceived fragility of technology is a source of anxiety:

> [*There's a paranoia, I think, with the picture. It feels a bit… And maybe something about how fragile it is. It's just held together with lots of wires*.]
>
> [*Yeah. More dread, I think*.]

The data indicate that technology facilitates anxiety from clients being communicated to clinical staff in an uncontained way. Staff are left unprepared for what is projected into them:

> [*Well it's interesting because it connects with what you were saying about the idea of people being able to contact you and it coming in really*

quickly and you're not having time to be prepared for it, and whether that's helpful or not.]

As well as receiving anxiety from clients, clinicians receive projected anxiety from elsewhere in the 'system'. Managers, who are subject to anxiety about the service, may use the technology to manage some of that anxiety for them:

[*Managers and senior board members who are managing and hearing about a system that's about people in chaotic states or struggling.*]

[*Because the image with the diary, it can be lots of different things, but one of the things it might be used for is by the system itself, to contain some of the anxiety that's going on.*]

This may serve a function for management but it can 'shunt' anxiety downwards onto practitioners:

[*The trouble is, it shunts down ... because they're paid to hold that anxiety, but what they do is shove it right down … They're just saying 'Look, there's a system, we can manage it,' so all the worry and anxiety stays right down there at the bottom*.]

Technology has a role in this because it affords instant communication from families on one side and, on the other, electronic appointment systems, patient record systems and agile working which give managers a sense that 'chaotic states' are being managed but which leaves the real 'chaos' of raw, unprocessed emotions with staff. They, in turn, are not held by their work environment or material surroundings:

[*What you're talking about is something really different because it's not about containment, it's about projecting something, getting rid of something really quickly to someone who's unprepared. And how that's the kind of work that's going on all the time. Well how can the workers do that if they don't have a place where they're just held by the chair, the desk, the place, that's somewhere that they can be comfortable in.*]

There is a powerful sense here of a lack of physical and emotional containment for the participants.

Finding C2: Practitioners use technology to defend against uncontained anxiety

There is evidence from the data that the participants look to technology to 'hold' some of the feelings that are not being contained elsewhere. Technology is being used as a systemic defence against anxiety:

> [*I think it's another way of managing institutional anxiety. Years ago, in a hospital, you would have managed it by shifts and systems and moving people around on rotas and that kind of thing, so it's just the modern day equivalent*.]

Computers in particular may be an 'object' into which feelings can be projected:

> [*And it depends what you think it's doing, because it's not always communicating and it's not always connecting… And it's not always relating, so it depends very much on what the thing is being used for*.]

Technology is being 'used' for something that is neither 'communicating, connecting or relating' which may indicate that the use is to block communications and defend against the making of links that might otherwise be disturbing or generate anxiety. There is evidence of technology being used as a [*way of making the world nice and neat and tidy*] which may be seen as a defence against [*the chaos that's actually out there*]. The idea of 'tidying the chaos' speaks strongly to the concept of defending against anxiety as an expression of the desire to clear away the [*pandemonium*]. For one participant, technology implies order and tidiness:

> [*Well I quite like it because it fits with my brain quite nicely. I like having things colour coordinated and in little discrete boxes. That must be my medic brain*.]

The same participant expresses the view that technology can serve to provide containment or temporarily hold some of the clinician's anxiety. It is clear that for some people technology is performing a function that, temporarily at least, gives relief from anxiety:

> [*And, I guess, from a… because we've been talking very much about containment and having that anxiety of being contactable or things projected and all that kind of stuff, but actually maybe, sometimes, for me at least, the technology holds some of my anxiety because I've recorded it.*]

Technology provides a readily available container for projections and there is an indication in the data that its materiality is an important factor:

> [*The keyboard can offer a bit of an anchor, though. In that you know what's where. Like I know where the Q is and the W. And you know what to do. You know how to do it. You know? A lot of our… the work is a bit… in unknown territory. But with that it's a bit of an anchor sometimes. At least you know how to do that*.]

The familiarity of the keyboard appears to provide an anchor in the 'known', compared to the 'unknowness' of the work.

Finding C3: Technology is a failed container

Technology is seen as providing an anchor and a place to tidy uncontained anxiety. However, the following data demonstrate that technology may be an ineffective container in that it does not help staff to process their anxiety:

> [*All these wires behind the desks. That don't get seen. Because often they're falling down behind the desk. So uncontained, in a way. Crossing over and hidden and*…]

This may be a reference to unconscious fears and anxieties [*That don't get seen*]. As a result the [*toxic*] information that the participants introject from technology and from the work stays with them; it isn't got rid of:

> [*It makes me… makes me think about breastfeeding. And it makes me think of what is it that… the girl maybe is taking in, is that toxic? Is it…? And it makes me think about the information that you take in. From a technological background and then from a work perspective. You know? How do you rid yourself of that at the end of the day? If that's possible.*]

If technology is not helping practitioners to process the emotion projected into it, this may be returned in a toxic form which staff somehow need to [*rid*] themselves of:

> [*That something's being taken in and not metabolised properly. Ending up somewhere*.]
>
> [*I think I've got some feeling of disgust to it, really*.]

This is an indication of raw, undigested emotion due to failed containment. If projections are not contained they may induce feelings of dread, which can be seen as an expression of unprocessed anxiety:

> [*I think I feel a slight sense of dread when I look at that, really.]*

[*I think I can identify with the dread. With the chaos of the paperwork and the… I guess the stilted-ness of the screens, really. An urgency but whether that's going to be translated in the technology that you're afforded, really.]*

The contrast between the 'chaos' of paper and 'stiltedness' of the screen may represent the contrast between the messy, painful, nature of the work and the unresponsive, unemotional, technology through which that work is mediated. Urgency is felt by staff but not shared by technology.

4.5 Theme D: Technology as an Actor in the Organization of Human Services

Codes from which this theme is comprised:

1 Metaphor of home, agile working, physical base

16 Workload shifted to individuals, change in nature of work

7 Technology changes relationships, connections, conversations

This theme presents data about the ways in which technology is acting on the organization of human services. There is evidence from the data that technology is changing working practices, relationships between practitioners and the structure of teams in ways that may not be fully recognised or understood. Whilst the changes have both positive and negative effects what is significant for this thesis is that it demonstrates technology is not passive.

Finding D1: Technology transports work across boundaries and onto individual practitioners

The data provide examples of positive effects of technology. One person has been enabled by technology to explore a new therapy with an international group, whilst another describes using Google to find information about child protection regulations and how this led to discovering other useful information. Several participants describe the ability to access patient records remotely as a significant improvement:

[*Those all feel like good ways to use technology, and certainly I remember doing assessments in the middle of the night 10 years ago*

and not having any information at all about a patient, not knowing if they presented a day ago in a very bad state or what they were doing, or who was at home, so it does feel that that's been immeasurably useful.]

One of the things that technology is doing is facilitating work outside of normal service hours. Analysis of the data showed multiple references to activity taking place at home and at the weekends or night time:

[*It's helpful that I can go home on a Friday night at six o'clock instead of nine o'clock and I can do some of my notes at home, because that's really helpful*.]

Another participant is keen on the advantages of mobile technology but it's action is to facilitate evening working:

[*I mean I love the fact that I can get home in time for tea sometimes and then I can do my notes at home*].

And whilst there are advantages to this she can also see that this efficiency is instead of having sufficient human resources:

[*I think a lot of people would prefer to have more members of staff than more devices and then we wouldn't have to be superhuman robotic agilely working, going from one patient to the next and writing our notes up in our cars.*]

The suggestion here is that technology is enabling staff to be more efficient but this includes a displacement of workload across the boundary of the work-life balance. Technology can also be seen to shift work onto individual clinicians that was previously held by dedicated departments or roles. Responsibility is shifted to staff to learn and navigate systems. An extra layer of skill and knowledge is required to access data and to record activity:

[…*unless you know how to navigate the screen, which is different depending on which system you're using, you have to learn how to.*]

The tasks that are transferred to clinicians are not just the specified ones, such as data management, but also the task of 'translating' or 'navigating' the technology required to perform the task:

[*But then we also have to be translators of technology, so it's not like we've got more stupid, it's just that we've got more to do.*]

[*There's too much.*]

[*So we are an administrator and we are a medical records person. We've got a lot more roles is what I mean.*]

Staff have to become efficient at multiple tasks and take on multiple responsibilities:

> [*Do you remember those huge filing things that went round in circles? ((laughingly))*]
>
> [*Yeah, it was like in the basements.*]
>
> [*And those people who knew how to use them! ((laughingly))*]
>
> [*But they don't exist anymore do they, and I'm just thinking about that shift, as well, and where it's gone*.]
>
> [*It's been devolved, hasn't it.*]

Technology has enabled whole departments to be eradicated and the tasks transferred to individual staff.

Finding D2: Technology facilitates mobile working which changes team relationships

The data demonstrate how advances in technology have facilitated changes in the physical estate and infrastructure of services, and that this impacts on working practices. There are fewer fixed bases from which to see clients and more mobile working. The phrase '*agile working'* is used on multiple occasions in the data:

> [*With the change in technology and the change in estates, and that change that has occurred more recently, has made those transitions more difficult I think. I don't think I'm imagining that, I think there is something about the physical changes that make it more difficult.*]

The interpretation that technology has a role in these processes is supported by:

> […*but just really noticing that, which I hadn't thought about in terms of the technology*.]

One image (Image 10) generates a disclosure from a participant about how she was rude to someone hot-desking in her office and how she felt bad about it. The technology is agile but it is more difficult for people to be so, and it has consequences in terms of relationships with each other and their sense of having a shared home:

> [*Oh, it made me think of shared desks or hot desking or whatever they call it now and that sense of not having a base at work, you know, we*

don't have a place, like you don't have a, I can't think of the word, home. That's the wrong word but you know what I mean.]

Additionally, technology is cited as changing traditional team relationships:

[*And also it really does murder teams as a kind of physical basis for what you're doing, so that sense of this is my desk, therefore that's your desk and that's your desk and we get to know each other.*]

Murder is a strong word, indicating perhaps the sense of loss felt from the impact on established ways of working and integrated, linked-up structures.

Finding D3: Technology facilitates instant communication which changes relationships with service users

Practitioners of all types are having to learn that technology is now integral to their relationships with clients, just as it is increasingly part of the workplace:

[*A degree of IT literacy now is becoming essential to be a foster carer, I think, for instance…the reason behind that is that actually if you were to be not able to help children participate in that world, that they would be deprived. That would be almost a form of neglect*.]

This is a real skill they have to have in order to understand and help children navigate and relate to the technological world. There is also evidence that mobile technology is changing the relationship between patient and clinician:

[*And the other thing that it brings up for me because I'm on call a lot, every week, and now obviously because we are working more mobile-y and everyone can ring us at any time and patients can ring you at any time and families can ring you any time and that in a lot of ways I want to be really accessible and available and I want people to be able to get hold of me, but it can often feel really intrusive, that you can be contacted at anytime, anywhere.]*

The patient is able to access the clinician when they need to. From the clinician's perspective this is intrusive but for the patient, it is argued by another participant, it is [*empowering*]. It may be positive that technology allows for the patient to access care at any time but it means that responsibility for managing the boundaries of the relationship with distressed patients and families, and the anxiety associated with that, is transferred to individual clinicians.

Technology is seen as having a role in different types of relationships in the organisation of services and with service users. A participant puts forward the theory that this should be seen as a hierarchy of technological and human relatedness:

> [*I think I've just started to re-evaluate what relational means and the hierarchies of relational. I think you can be technologically related, technologically relational if you like, but actually it's helpful to hold onto the idea that human connection and human relatedness is of a higher order than a text message or an email or a phone call and skype.*]

The theory offered by the participant is not only that different forms of relating are more or less 'human', and in her view 'of a higher order', but also that there is an inverse correlation between efficiency and relatedness:

> [*I think it's been helpful for me to be freed up to think that, in terms of time management and efficiency, you can actually connect on all these different levels. But there's no point pretending that you can relationally connect fully just through email.*]

The key point is that she can see that technology allows different forms of connection to be made, which can be useful in different ways, but that these should not be confused or conflated; one must not 'pretend' that relating by email is the same as relating face-to-face.

4.6 Theme E: Discourses that Inhere in the Technology of Human Services

Codes from which this theme is comprised:

3 Value, feeling valued, investment

4 Intrusion, scrutiny, lack of trust

11 Loss of control, people as a resource, discipline

15 What kind of model/world is being envisioned, discourses

17 Technology as extension of human desire/drives

20 Food/feeding metaphor

Theme D provided data about the actions of technology. This theme presents data in relation to what might lie behind those actions including discourses and

power relations. If it is recognised that technology is not a neutral presence then it should also be asked what purpose it is serving:

> [*So parts of it appeared to encourage dissemination of knowledge and communication, and parts of it appear to be being tapped for other purposes that fit another agenda, and that to me feels very worrying.]*

Finding E1: Technology imports corporate discourses and values into services

The data show that discourses associated with technology may be changing the language used by the participants. Discourses bring with them particular ways of seeing the world and these may change the conceptual frame through which reality is viewed. The group discuss the meaning of 'agile':

> [*Limbering up, ((laughs)) and how words get hijacked you know, they change meaning don't they and that whole language of technology and how we all use it now in our workplace, it's just fascinating*.]

Technology brings with it a different kind of language. Practitioners are left:

> [*Trying to find a way to say things that we believe in, in a language that other people who want a different kind of outcome can understand, or a different kind of language.*]

An example of how the participants' language is being changed by technological discourses is when one participant says, in relation to what she describes as her service's 'backwards' position on technology:

> [*It's just the antithesis of the team that I work in, the speed that we need to be working with, that doesn't lend itself to long-distance communication or planning, it needs to be instantaneous.*]

And in comparisons to 24-hour instant access services:

> […a*s opposed to being able to make a call like you would anyone else.*]

Is the idea of an 'instantaneous' 24/7 service associated with technology use? This may be why it feels like:

> [S*ome people are speaking a different kind of language about algorithms and things.*]

In Image 6 the group are presented with a vision of global technology in the corporate world which clashes with their experience of technology at work. The picture is of a different kind of connectivity:

[*It's an advert for not actually engaging face to face with people. To be done through technology. In a corporate way.*]

The image is described as a [*God like figure*] with great power to impose a corporate view of the world on services:

[*Or is that what the sort of new vision of the future would be like? Just all plugged into each other all the time, working harder and faster and more efficiently?]*

Working as efficient machines and being connected only via technology is the corporate vision they feel is being sold to them. The influence of internet based commerce in particular is seen in the use of TripAdvisor style rating systems:

[*If you want to have a savage outburst on Twitter or TripAdvisor, or iWantGreatCare, which I see our Trust has brought in for doctors with no consultation, it's an open forum for patients to write whatever they want about their doctors.*]

And in comparisons to Amazon.com:

[*And as a consequence, if I just think about what Amazon suggest that I might like to read next, it's invariably not what I want to read at all, and applying algorithmic procedures to things as diverse and as complicated as the work that we do with young people.*]

Finding E2: Corporate discourses conflate the value of technology and humans

The NHS is a consumer of business practices and business goods, including technology, which may be valued ahead of people:

[*The NHS has paid millions for computer systems to make the National Health Service national so we're all connected up and it hasn't worked, millions of pounds have been wasted. It hasn't worked, but here we are with millions of devices that cost a fortune.*]

There are repeated references to 'investment' and 'being valued' in the data including a sense that staff are not valued:

[A*nd I think that was what I was thinking when (a fellow participant) was talking as well, was just that sense of not being valued by the organization as people who need containing, because we're doing really difficult work, I mean emotionally difficult work, that needs some level of compassion*.]

Instead it is technology that is valued:

> [*…but instead of spending money on people they're spending money on technology to make the existing people more efficient, supposedly.*]
>
> [*And they used to bang on about investing in people in the NHS, and now it feels like everything is invested in technology.*]

The issue of 'value' opens up the question of what technology is there for and how is it being used:

> [*I mean I use technology, I use it a lot and I do see the advantages of it and that's the world we live in, but when it starts to be talked about in this way about what's it there for, you know, all those devices, what are they there for?*]

The answer is indicative that technology is entwined with business discourses of measurability and efficiency:

> […*because this is the modern world we live in, things need to be recorded, if you don't record it, it didn't happen, I get that and they want their money's worth and systems need to be lean and mean and all those kinds of things.*]

Within discourses of technology and business humans themselves become a commodity:

> [*Yeah. And the people are contained with… and the little people are contained within the screens. I think they're… they are commodities. Units or… kind of pushed around and… discarded when they outlive their usefulness or need upgrading.*]

Finding E3: Staff are a commodity that has to be audited and controlled

The data contain several references to how technology facilitates greatly increased levels of control over, and scrutiny of, professionals' work:

> [*I suppose maybe why it made me think about people being able to see what I'm doing and having to prove what I'm doing or justify why I've got an hour's break at ten*.]

If staff are a commodity then they need to be audited and controlled. The technology allows managers to scrutinize clinicians activity in a new and direct way:

[*And I suppose it makes me think of units of time and how, I always get this sense that I have to fill my diary up so that managers or people looking at it will know that I'm actually doing some work. ((laughs))*]

[…*and that whole issue of who has control over your time and what you do*.]

Instead of being trusted, autonomous professionals, staff are now a 'resource' and as such they can be 'deployed' and their time controlled via technology:

[*And I guess that makes me think about being felt to be a resource that can be wheeled out I suppose*.]

[*Deployed*.]

[*Deployed, yeah like you've got six units of time so we can put six units of work in there without any consideration of what else that might entail, you know, what else that bit of work might be, you actually need half an hour afterwards to think about it or go and have a conversation with a colleague about it*.]

If the service is to be agile, instantaneous, 24/7 and measurable then it makes sense that managers have to be able to control staff in this way:

[*And we're all made into these numbers, ID numbers on our devices so we're trackable*.]

This has quite a paranoid feel to it but does perhaps indicate the experience of becoming servants of the technology:

[*Being a resource, being deployed to things… and I think we've all expressed at some point or other, some kind of slavery or feeding the machine*.]

Commercial discourses are orientated towards measurement and data collection. Technology enables the capture of data in a way that would be inconceivable without it:

[*And I… it's hard… it's hard, not just thinking about the outcomes, it's hard not to think that technology enables the capture of data and therefore it gets captured because it can be captured. More and more and more of it. With no real… a lot of data we capture there is no real purpose to it. There's an idea that one day there will be a purpose*.]

This feels like the 'distortion' referred to elsewhere; organizational systems and clinical practice are being orientated around the collection of data but it feels as if:

[*It is an insatiable machine, though isn't it, because you are inputting things in it, you're feeding it constantly and it's insatiable because it's never going to get full*.]

There are suggestions that the control and intrusion afforded by technology goes beyond what might be seen as necessary to manage resources efficiently. The act of collecting data becomes significant in and of itself:

[*What are you going to do with it, just keep putting it into a bigger and bigger and bigger pot? A lot of the data measures that we use we're explicitly told no-one knows what to do with this yet, we're just going to hang onto it and just see what comes out*.]

Technology is a vehicle for discourses associated with business practices, measurement, efficiency and instantaneous responses. These discourses value technological resources over human resources. Technology is invested in whilst people are commodities to be deployed efficiently. There are indications though that technology additionally acts to discipline professional staff.

4.7 Theme F: Technology's Role in Processes of Transformation

Codes from which this theme is comprised:

10 Concrete - abstract, fixed, 2D/3D, surface, levels

25 Reduction, counting, measurability, quantifiable

Finding F1: Technology affords the process of abstraction from lived experience

The first finding in this theme demonstrates the process of abstraction taking place in which movement and complexity are reduced to simple representation. The act of taking a photograph is a familiar example of abstracting a particular moment or event from a process that took place over a period of time, even if only a brief one, and in which there were many similar moments that *could* have been captured. A photograph is a *snapshot*; a two dimensional representation of a three-dimensional event in time:

[M*y daughter takes pictures of everything, like every meal, every cake she makes, everything and it becomes so erm fixed. But then a*

photograph is not actually the real thing either is it? It's two dimensional and often colours look different.]

It can be seen that the same process occurs in creating an electronic record of a clinical encounter. Here the participant is describing a 'flattening' from three dimensional (3D) to two dimensional (2D) in the process of recording the event. This might be thought of as recording the surface effect of the event. The participant asks whether we 'lose value' in that process:

[*I couldn't help thinking about the three dimensional going to two dimensional and then if it's then made into a file that goes on an electronic record, is that the value of it, do you lose value as it's going through that process, as it gets less dimensional*.]

For this group of practitioners, it is the 3D experience that is valued above its abstraction as a record. What is apparent though is that the act of abstraction involves a transformation of the event in which something may be both lost and gained:

[*But I still think that there's a communication which is not 2D, it's not. Like that picture that we saw of the collage on the phone, where the 3D and the experience had become 2D, I did feel something is lost. Like something is gained in that you can take it with you, but something is lost in that communication*.]

This participant makes a link to how outcome measures require something human to be fitted into something else and the distorting effect of that action:

[*It might be a huge leap, but it makes me associate to outcomes… I went off really.. I think it goes with things like distortion and making human things fit into shapes like that. And what gets lost and distorted. Potentially*.]

Similarly if videos are made with a particular group of young people, who are willing and able to speak about their experiences on film, then only one part of the wide spectrum of work is represented:

[*You have to wonder about teenagers who lend their help to developing CAMHS services, I always think, I wonder if what gets produced is a very, very narrow scope of the field then for others*.]

The colour coding of activity in an electronic diary is one example and what is recorded is determined partly by the limitations of the system. If there isn't a colour for 'conversation' then no time is allocated for it:

[*Like what colour is a conversation with a colleague? All those bits that might not be reflected in the diary.]*

A process of reducing something multi-faceted and substantial into something 'diluted' and one-dimensional is seen when knowledge is commodified:

[*There's something about a commodification of knowledge that I think is diluting and what you get out is a bit less substantial really.]*

Similarly with data collection, the client/practitioner experience is reduced to one 'value'. The event is not valued in itself as an experience, it has to be recorded:

[*What (a fellow participant) said about currency which denotes value in some way, I've got a slightly uncomfortable feeling about, 'unless it's recorded in some way, take a picture of it', that it actually happened, that it doesn't have value. The fact of actually doing this piece of work with the young people in itself wasn't the value, it had to be in some way be recorded, a bit like 'if it's not in the diary it doesn't count'*.]

[*Yes, there's got to be evidence of an experience rather than just the experience*.]

Once they have been recorded images or data become something else and their exchange value changes:

[*It becomes a kind of currency doesn't it, you can email that then, you can post it places, you can send it around*.]

[*Maybe the picture's going to go somewhere perhaps in a folder, in a drawer, on a wall. But we're talking different dimensions aren't we?]*

The word 'dimensions' here connects to earlier references to 2D and 3D.

Finding F2: Technology encourages a process of reification[27]

A tendency towards reification is associated in the data with computerised storage and processing. The group experience technology as being rigid, that it doesn't allow for the working through of thoughts in the same way as the human brain:

[*Coming back to the flexibility as well, and I'm thinking of memories. And corrections. You know? Like if I say the wrong word and then think, "Oh, no, I meant such and such", that you don't sort of have with other technologies to the same extent.]*

[27] Reified, reifying. Verb, to convert into or regard as a concrete thing: to reify a concept. http://www.dictionary.com/browse/reification

[*Less human, isn't it?]*

[*Yeah. Less human*.]

With reference to a television programme about algorithms it is said:

[*Isn't it more helpful sometimes to think about those things?*]

Technology is seen to fix events as they were whereas memory will change and be worked through or forgotten. A 'fixed memory' that gets repeated and not processed is symptomatic of trauma, whereas a more plastic, malleable, memory can be made sense of and acquire new meaning over time.

[*I was thinking about memory and how we have so many memories that change, you know, I'm sure the memories I have are not actually what happened and so much is videoed and photographed now and is therefore pretty much as it was. I guess I was just wondering how that affects people's memories of things when there's a constant actual reminder of it.]*

[*Something that should be forgotten maybe*.]

[*Or changed.]*

[*Or plastic, something which would have been plastic becomes fixed…]*

The reification process is seen in similar experiences in social work and the NHS where it is the record of the event that becomes the 'real' thing rather than the event itself:

[*It's another twist maybe on that saying that I remember hearing in terms of the importance of writing down stuff in social work, if you don't record it, it didn't happen*.]

[*And I think there's a parallel in the Health Service now that if it isn't on the electronic record it didn't happen, so you get, which is nonsense, but it's that idea isn't it about something having to be a tangible thing, for it to, rather than a memory or an experience of feeling*.]

The final part of this sentence is significant because the participant is saying that the record only 'counts' if it is *tangible* – that is, a material or concrete thing that can be touched. This indicates that the electronic record is considered to be tangible, a real 'thing'. She contrasts this with memories and feelings which might equally be considered 'real' but are perhaps also more transitory – they will change and fade over time whereas an electronic record is a 'fixing' of an event. The abstraction of the event becomes more real, more concrete, than then event itself.

Finding F3: The error of misplaced concreteness creates 'as if services'

So far the data in this theme have suggested that a reductive process is taking place in which complex lived experiences are abstracted from their context to produce a two-dimensional representation that may become reified as the thing that has value. A further step may be evident in the data which is that the representation is acted upon concretely, that is, *as if* it was the event in stands in place of. This quote describes the error of conflating a complex event with the simple record of it:

> [*In the same way that I can see a note that my colleague has written four months ago in a blink of an eye, there's an idea that all of the complexity could be reduced to something as easy as that, that there's somehow a comparison between seeing what my colleague wrote four months ago and making statements about how someone is progressing or about what their experience is*.]

The following is an example of how a technology (Outlook diary) works for simple things but imposes a particular structure that is not helpful for more complex circumstances. The actual clinical session is abstracted as colour code 'green' which may be mistaken for the session itself:

> [*And it kind of presumes that everything we do is the same doesn't it. So that it presumes that an hour slot needed for a team meeting, and you need a five minute turnaround to get to your next thing, well if your next thing is an appointment with a really tricky adolescent then actually you might need half an hour's turnaround after that because you might not be able to… Or if it's something that you're really bothered about you might need an hour to write something up about it immediately, or there might be things to follow up about risk and they need attending to immediately. And you just think these slots are okay but what if the patients don't fit in the slots, then you get stuck. Because if this is a fixed system and the green is your appointments, the blue is your write up time or whatever, they have a meaning. What if what you do doesn't fit that meaning anymore and it bleeds around the edges? Well this has very defined edges, there's no bleeding through this, it's going to stay as it is, but we, and the work, doesn't, can't stick to those…]*

The tidy, colour-coded world is seen to stand in place of the more messy and disturbing version of reality. This is summed up by this quote:

> [*And there's maybe a little sense of that here – that maybe out there, well it's not at all cut and dried, but in here it's all colour coded in nice blocks and it stands instead of reality rather than representing it. Perhaps.]*

The concrete world is messy but its representation in the diary is cut and dried. This is problematic if, instead of being recognised as representing reality, it is allowed to '*stand instead of reality*'. This may be seen in examples of policy implementation where a concrete version of the policy is enacted in services in inflexible ways that do not account for differences in practice 'on the ground':

> [*All sorts of things like scoring numbers for things and making things fit… Equally, I've been present at lots and lots of, specifically psychotherapy, discussions where psychotherapists have said 'are we meant to record our process notes on an open system?' 'Are we meant to put down the young person's fantasies on a system where everyone can read it?' I've heard lots of responses from senior management saying 'absolutely, we are paperless, there's no room for paper notes, if someone says something to you, you put it down in the notes'. Which seems to me to be an absolute misunderstanding of what certainly psychotherapy does and should be doing*.]

Similarly there is evidence of the use of routine outcome measures being applied rigidly irrespective of their relevance to the therapeutic modality or the type of client:

> [*Tangentially outcomes, which again I've hopped from Trust to Trust seeing the beginnings of outcomes being put in, and although I can understand that in some modalities, in some areas they would be a useful tool, I can also see that in some others they would not be a useful tool and would in fact have the potential to be dangerous and to be very unhelpful and harmful.*]

Evidence has been presented in Theme F of technology's role in processes of abstraction and concretization in which multi-dimensional events are reduced to a fixed and flattened representation. Most significantly, the data provide evidence that the error of misplaced concreteness is occurring and the reified abstraction is equated with the lived experience of services and then is acted

upon in organizations. A simplified model is imposed rigidly onto a complex reality *on the mistaken assumption that they are the same*.

4.8 Theme G: Sustaining Abstract Thinking and Creativity in Technology Use

Codes from which this theme is comprised:

12 Thinking, complexity, messiness

13 Boundaries

23 Increase in human agency, reclaiming

24 Opening up, play, creativity – opposite of code 10.

26 Distance metaphor, critical distance, remaining adult

Theme F was about thinking becoming concrete, aided by technology, leading to rigid implementation. Theme G is about how we might keep thought open and flexible, and in so doing have a healthier relationship with technology.

Finding G1: Technology can be engaged with creatively if the context allows

As noted previously, the use of technology in human services is likely to continue to increase. It therefore has to be engaged with, but doing so is challenging. Some practitioners have been able to adapt to technology and reclaim some of their agency:

> [*You can master some of this stuff yourself and there's something self-driven, self-directed about it as well*.]

Whereas others have simply left the system:

> [*I left those environments because I couldn't bear them any longer*.]

Or chosen to 'switch off':

> [*You can switch it off and stay away from the WiFi, you can go the Amazonian rainforest. There are options, aren't there, choices, Tan Hill*[28] *or wherever*.]

This is not a realistic 'choice', either for teenagers using the internet, foster carers regulating its use, or clinicians using information and mobile technology

[28] The Tan Hill Inn is the highest pub in England. (http://tanhillinn.com/ no date)

at work. Instead, engagement requires flexible thinking and curiosity. This is seen in the social photo-matrix in relation to Image 3:

> [*I'm curious about what that other bit of whatever is on the extreme left … I wonder what that is. I don't know*.]

The participant is able to remain 'curious' about what is not seen, the parts that are not visible. The ability to not jump to an immediate position of *knowing* leads to an opening out into multiple meanings with many facets that are complex and not reducible to a single concept:

> [*I think it's the sort of picture that you could study in great detail and see something very different and feel something very different every time you looked at it in… in a different way, a different light, and in a different context. It's very rich, isn't it? Diverse. Sexual. Aggressive. Primitive. Infantile. There's a lot in there*.]

If thinking can be kept flexible then it is possible to recognise an abstraction as an abstraction and not to equate it with a concrete event or phenomenon. With reference to a bust of Sigmund Freud sat on a computer in Image 3 a participant says:

> [*And I suppose a bust is a very old piece of technology that is still in use. That… a symbolic depiction of something or someone is still there to serve a technological purpose, which is… I suppose various things. Maybe to bring attributes of that person to mind*.]

The bust carries a lot of meaning so it opens up thoughts, links and memories. In order for flexible thinking to be sustained, the data suggest, there needs to be space for 'creativity' and 'play':

> [*You can kind of connect in a freeing way and in a creative way with technology. Thinking about artists, Hockney using the iPad to do all those amazing things*[29]*. There are people that can use technology in amazing ways and there is some element of choice in that and self-determination*.]

There may be potential for creativity if organizations allow it, but evidence from the data indicates the experience is currently the antithesis:

> [*It's easy to feel imprisoned by workplaces, the concept of work and technology. Your own imagination is free, it's a form of technology, your*

[29] See for example Perkins (2013)

own imagination, so there's a freedom that comes with freedom of thought.]

As shown in Theme E 'technology at work' is experienced as controlling; here it is defined as the opposite of 'play':

[*And then there's one little glimpse of something play in there…but apart from that the communication is work to me*.]

In this context 'play' seems to represent agency and the freedom of staff to use technology flexibly in a way that meets their needs. A participant attempts to look creatively at an image (Image 1) of a PC and laptop on a desk but fails because she is numbed by the work context:

[*I mean, you could look at it in a creative way. But that's going to say there's not a lot of creativity there, is there? It just feels like a kind of… but you could… you know, if you were in an art gallery or something, you could probably get a creative spin on it in… in a display of some kind. But there it's just like the numbing aspect of work. The workplace*.]

Finding G2: Practitioners can reclaim their agency

The word 'play' also implies freedom of movement. The inclusion of personal objects, such as toys, in Image 3 is seen as a 'reclaiming' of agency including control over workspace:

[*There is a bit of ownership over the space*.]

[*Mm. Kind of reclaiming, almost*.]

[*Yeah. It's not just a hot desk space or something.]*

There are examples in the data of how technological discourses can be reclaimed by practitioners, such as this positive use of 'agility' for the workers' benefit:

[*Agility, I'm going to start using that word*.]

[*Yeah, that we can be static or on the move, we have options.]*

There is not a single meaning of 'agile' so they can reclaim its use in a way which allows for flexibility as appropriate to the circumstances. One participant provides an example of how a team can reclaim their agency from technology and in so doing recreate the working environment they need to operate as an effective team:

[*So then the technology has been moved into a space and utilised. So the team can't be criticised because they are utilising those systems but have reclaimed the team and put us back in a space together*.]

In Image 3 there are several toy 'Angry Birds' from the computer game[30] and in Image 4 there is also a part of the drawing that looks like an Angry Bird. These seem to symbolise defiance, suggesting that it may require some aggression to reclaim agency:

[*I think those blue things under the computer are Angry Birds aren't they? So I was wondering about aggression. Something about… somebody said "defiant". There's something a bit defiant about it, isn't there?*]

The images provided by the participants on the theme 'technology at work' carry meaning and emotion. In relation to Image 9 of a computer with a mess of wires hanging down behind it a participant says:

[*I love that. Because that was in my mind early on. You know? When I said about how hard it was to capture the image that was in your mind. The mess*.]

The representation of the concept of 'messiness' has been captured in the image by one participant which connects to a thought held by another. This suggests it is possible to capture complex ideas such as 'messiness' in a way that is recognisable and carries sufficient information that its meaning can be understood. Another person says about the same image:

[*My initial thought is it's out of focus. The photograph. Blurred*.]

Human experience is never quite in focus. Blurredness is appropriate as it would be an error to try and represent feelings about 'technology at work' in a clear, unambiguous way. Similarly, in relation to the image of the Outlook diary (Image 7) the clear division of work into defined blocks isn't representative of the reality of services:

[*Mm-mm, it would be better like you said if the lines were more messy, it would be more representative*.]

This participant wonders if there might be ways to capture a truer representation of the work:

[30] Since 2009 Angry Birds has been downloaded more than 3 billion times making it the most downloaded mobile app in history (Robertson, 2015).

[*Lots of other things like outcomes, I don't want to just say outcome measures are rubbish because they don't represent what I'm doing, it's trying to find a way that we can capture and represent what we're each doing as individuals.]*

Finding G3: It is important to maintain a boundaried relationship with technology

One of the properties of technology, as noted in Theme B, is its ability to transgress boundaries, for example in the act of facilitating working from home. A participant states the case for maintaining or regulating boundaries because of their importance to the therapeutic relationship with clients, and not allowing this process to be led by technology:

[*And I suppose I'm thinking about that idea of how much we can control our use of technology and the importance of structure and boundaries and it remains as important doesn't it whether we're using a mobile device or a landline, because the principles of how we sort of contain people's anxieties and however we can be accessed, it's the same really isn't it, and are we setting something up that is actually quite unhelpful*?]

The extent to which boundaries are permeable needs to be different depending on the nature of the relationship. In the case of foster carers the participant is able to give his private mobile number to some people but not others:

[*But actually that wouldn't always have been the case with every kind of foster carer I've ever worked with, some of them I wouldn't give numbers to because basically I wouldn't trust them not to be ringing me at all sorts of times about all sorts of things*.]

A sophisticated understanding of boundaries is needed even within the same type of relationship. This suggests that a blanket rule of either 'do' or 'do not' give your number would not be helpful and a more fine-grained use of technology needs to be developed. This might be thought of as maintaining a critical distance or 'remaining adult':

[*Somehow trying to keep abreast of it and keep up with it and engage with it somehow.*

But also remaining adult.]

There is a parallel between the parent role and the clinician role in recognising the need to know about and understand technology whilst maintaining sufficient

distance to hold an adult view of the pros and cons. The participant describes the connection between remaining adult and having a critical, or perhaps discerning mind:

> [*I want to learn about all these things like Tumblr, Reddit, all these things they use, which I don't fully understand. I want to have an understanding of them but with a critical mind. I think that's what I meant when I said remain adult, don't get sucked into them so that you know as much as possible, but always try and keep that critical mind about it, the good things and the bad things about it and stuff.]*

The sense is of a group of practitioners struggling positively to get to grips with new technologies, and to use them in ways that reflect the reality of their work, but doing so in an environment that values certainty over creativity and control over independence.

4.9 Summary of Findings

This chapter has presented in detail the data from the social photo-matrix groups and the outcomes of the thematic analysis. From this a number of initial findings have been identified which are discussed in Chapter 5. The findings from each theme are:

Theme A: Practitioner attitudes to 'technology at work'
A1: Practitioners face a 'double challenge' in relation to technology
A2: Practitioners demonstrate a range of responses to technology
A3: Practitioners hold different positions in relation to the possibility of change

Theme B: The material entanglement of humans and technology
B1: Human services' work is entangled with the material artefacts of technology
B2: The body connects practitioners to the network
B3: Practitioners become dependent on the network

Theme C: The role of technology in anxiety and defences against it
C1: Technology generates anxiety and facilitates its projection into practitioners
C2: Practitioners use technology to defend against uncontained anxiety
C3: Technology is a failed container

Theme D: Technology as an actor in the organization of human services

D1: Technology transports work across boundaries and onto individual practitioners

D2: Technology facilitates mobile working which changes team relationships

D3: Technology facilitates instant communication which changes relationships with service users

Theme E: Discourses that inhere in the technology of human services

E1: Technology imports corporate discourses and values into services

E2: Dominant discourses conflate the value of technology and humans

E3: Staff are a commodity that has to be audited and controlled

Theme F: Technology's role in processes of transformation.

F1: Technology affords the process of abstraction from lived experience

F2: Technology encourages a process of reification

F3: The error of misplaced concreteness creates '*as if services'*

Theme G - Sustaining abstract thinking and creativity in technology use.

G1: Technology can be engaged with creatively if the context allows

G2: Practitioners can reclaim their agency

G3: It is important to maintain a boundaried relationship with technology

Chapter 5. Discussion of Findings

So come on let's dissect it
Let's cut it up till it's gone
Let's break it up into pieces
Throw away what we don't understand
It comes together again
It comes together again somehow
(Fanfarlo, 2012)

5.1 Introduction

The research using the method of the social photo-matrix produced a large amount of valuable data from which emerged multiple findings relating to different aspects of the human-technology relationship. The purpose of this chapter is to make sense of those findings and to interpret them in relation to the central research question. As such, the findings have been grouped into four sections that together provide responses to aspects of the research topic. Section 5.2 brings together the six findings from Themes B and C into the conclusion that: *Technology and people are entangled both physically and emotionally in the organization of human services*. 5.3 brings together the six findings from Themes D and E into the conclusion that: *Technology mediates powerful forces which act on the organization of human services*. 5.4 builds on the three findings from Theme F to offer the conclusion that: *Technology affords a process that transforms the reality of human services organizations*. 5.5 considers what the six findings from Themes A and G might contribute to organizational practice through a conclusion that: *Individual and systemic factors can be worked with thoughtfully in order to realise the promises of technology in the organization of human services*.

5.2 Technology and People are Entangled both Physically and Emotionally in the Organization of Human Services

The data and findings discussed in this section address the research question by demonstrating the 'constitutive entanglement' (Orlikowski, 2007) of humans and technology in the human services. This thesis develops the theory by providing evidence for the significant role played by emotion, especially anxiety, in that entanglement. Simultaneously the findings develop the psychoanalytic

and systems-psychodynamics approaches to organizations by taking seriously the role of the human body, artefacts and technology in intra- and inter-personal dynamics. The findings move the field of study beyond a technology–human duality.

5.2.1 Human services' work is entangled with the material artefacts of technology

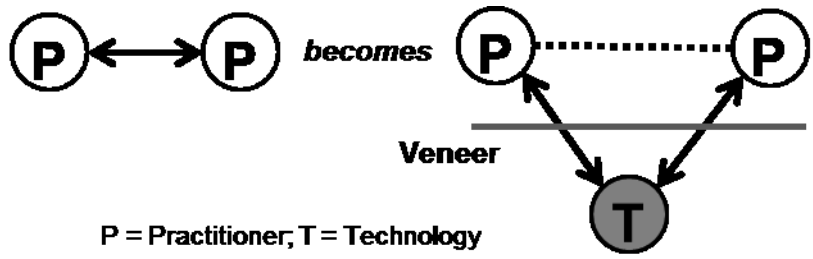
The image of a computer (Image 1) brought to the social photo-matrix generated an association to [*work*]. Work and the computer may have become synonymous in the participant's mind. The computer is where the worker works. In this sense human services are no different from any other office-based working environment. Except of course they aren't the same. Their primary task is engaging with human illness, distress and disturbance. What does it mean that the computer represents the work of these services? One interpretation might be that mundane artefacts provide a symbolic representation of the more intangible, emotional and relational aspects of services. Another might be that the services are increasingly being organized and structured around, and through, technology and its material manifestations with the 'work' perhaps increasingly dominated by data entry, record keeping, outcome monitoring, mobile and electronic communication.

The data suggest that human services are now thoroughly entangled with technology and that this includes powerful emotions that penetrate the socio-technical system. When the participants see the tangled wires they also see risk, and feelings getting mixed up. A key element of the systems-psychodynamics approach is an understanding of how the task of organizations, and the dynamics of the specific client groups to whom they relate, will affect the behaviour and mental life of each team or service. Drawing on the psychoanalytic concept of projective identification, Cardona describes, "the striking way in which the team absorbs and soaks up the central dynamics which operate within its client group, often without realizing that this is happening" (1999, p.239). This view of 'the team as a sponge' is incomplete without an understanding of how these dynamics may be transported, transformed and mediated by the material aspects of organizing including

technology. Physical things facilitate relationships. Technology is part of the *fabric* of services (Zammuto et al., 2007).

The consequences of this entanglement may not be immediately apparent. Where technology mediates connections and communication it may be said that there exists an artificial relationship, a [*veneer*] as one participant describes it. This may not be visible if an assumption is made that technology simply transports communication unmediated.

Figure 1: Communication mediated by technology

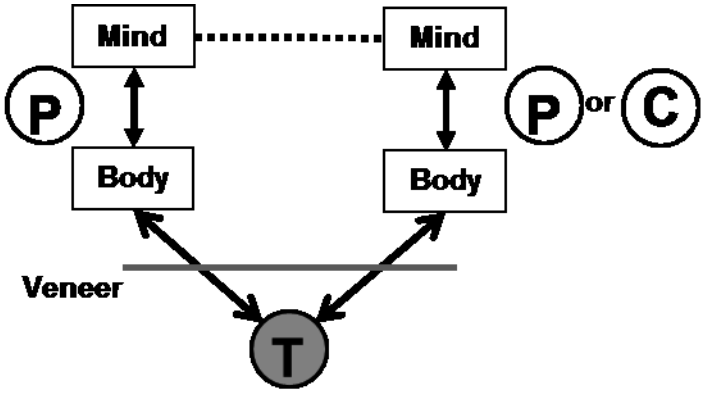


As well as the veneer representing the artificial media through which communication passes, it could also be acting as a defence against some of the emotion or anxiety contained within those communications. The raw feeling may be stripped away if, for example, patient encounters are presented in the form of data. In this sense there may be a link to Bick's (1968) concept of the 'second skin' employed by the infant in the absence of maternal containment: "The infant without a sense of internal space makes adhesive links to his object, sticking to the surface in the absence of access to a three-dimensional object." (Rustin, 2013, *no pagination*). The lack of containment provided by technology is discussed in section 5.2.6 below and one implication could be that this, combined with the 'flatness' of technology in reducing experience from 3D to 2D as discussed in section 5.4.1, leaves people without a sense of internal space in which to process emotion. In turn, they may stick adhesively to the surface of technology as represented by either the material artefact (phone, laptop) or the outputs (data, charts, photographs) of technology. Perhaps the participant's identification of herself as [*Doctor Google*] provides her with a second skin defence against the anxiety of being expected to know everything.

5.2.2 The body connects practitioners to the network

Practitioners bring their bodies to work as much as their minds. The use of the body is exemplified by the participants needing to feel and experience the mental state of the person they are assessing; and this is felt to be harder via technology. The mind connects to the material world via the body which may connect to the bodies and minds of other practitioners or to clients. There are potentially a series of actors, each of which may act as a mediator, altering the connection in subtle and unnoticed ways. The practitioner may continue to conceive of the relationship as being simply mind to mind (as represented by the dotted line in Figure 2).

Figure 2: Communication mediated by body and technology



P = Practitioner; C = Client; T = Technology

There are multiple occasions where the intended communication can be mediated and distorted into something other. A colleague referred to this as the 'Chinese whispers of technology use' in which something gets lost in translation from point to point.

5.2.3 Practitioners become dependent on the network

The data discussed above show that services operate as a tangled network of humans and technology in which people relate to technology with their minds and bodies. Once an actor is established in a network the other actors (human and technological) may become dependent upon it; it is their [*life support system*]. However, if it doesn't work and [*the systems go down*] they [*feel*

completely helpless]. Staff are physically reliant on technology for many functions including communication, memory, knowledge and organizing. This is how technology gains agency and humans lose it. If one stores contacts in a phone rather than remembering them, then one is dependent on the memory function of the phone to maintain human connections. In gaining the greatly increased storage capacity one gives away agency.

The participants say about teenagers that their phones are an extension of them, but this is equally true for the practitioners as technology is so integral to their work. However, the technology is felt to be unreliable and 'fragile', both physically, breaking down, not working, and emotionally in the anxiety it generates. This results in a 'failed dependency' (Hopper, 2012) which is the traumatic process by which we invest our faith in someone or something that then lets us down[31]. An example of a traumatized organization from the data may be when a participant refers to an office where she is hot desking as [*pandemonium*]. One definition of pandemonium[32] is 'the abode of all the demons', perhaps indicating a space full of uncontained anxiety and fears. The entanglement of the material and emotional worlds, and its impact on staff, is clear when a participant says 'it' (the technology) felt unstable, so 'I' (the person) felt unstable. The objective and the subjective are intertwined, tangled.

5.2.4 Technology generates anxiety and facilitates its projection into practitioners

The data indicate that frontline clinicians and practitioners are increasingly unprotected from the anxiety that is projected into them from both service users and management. Moreover, these actions may be facilitated by technology. The failed dependency described above induces a feeling of helplessness, and perhaps trauma. This section describes how staff seek to use technology as a container for their own anxieties and those projected into them. However

[31] Interestingly the term 'Failed Dependency' has a specific meaning in computing and internet language and is identified by the HTTP Status Code 424 (REST & WOA Wiki, 2017): "The 424 (Failed Dependency) status code means that the method could not be performed on the resource because the requested action depended on another action and that action failed. For example, if a command in a PROPPATCH method fails, then, at minimum, the rest of the commands will also fail with 424 (Failed Dependency)." This highlights the inter-dependency of actors and actions within internet protocols which may have parallels to relations between humans and technology.

[32] http://www.dictionary.com/browse/pandemonium

technology has no way of doing anything with these emotions, of processing the projections; it is a failed container. As a result staff have to take back what they have projected outwards and introject it in a raw, unprocessed form that serves to increase their distress.

The data indicate that technology facilitates anxiety being communicated to clinical staff in an uncontained way. A sense of risk seems to be a particular element of the anxiety, perhaps indicating a fear of harm occurring. Clients have instantaneous access, therefore instantaneous ability to pass on their anxiety. It becomes the practitioner's problem, their risk to manage. There is a desire to manage the feelings of risk and anxiety and the fantasy may be that this can be achieved by projecting it into technology. The action of technology is to afford the rapid evacuation of anxiety and to spread it out, for example through the sending of an email to all staff. This may work to contain the sender's anxieties but in so doing they share it with many others in the system.

Technology processes data[33] but transports emotion without processing it. Technology shares anxiety, as an intermediary, but does not modify it, as a mediator would. An example of a mediator of anxiety in these circumstances would be [*having a conversation with a colleague about it*]. Actor-network theory (ANT) suggests that organizations are the result of multiple associations between heterogeneous actors (human and non-human) (Latour, 2005). If organizations are constituted by multiple actors then it can be seen that, as the use of technology increases, then the balance between human and non-human actors changes. The proportion[34] of human actors in the organization decreases as the amount and proportion of technological actors increases. Therefore, the proportion of actors with the capacity to mediate, modify and contain emotion decreases as organizations are technologized.

Technology may increase the overall size and capacity of a service but its relative emotional capacity is reduced. The emotional equilibrium of the service is disrupted. Technology acts to multiply the circulation of anxiety and humans

[33] It may be said that processing data is the primary task of technology

[34] If not the actual amount, although that may also be the case and may be increasingly so with the automation of services

are left having to process that anxiety, as the only actors able to do 'emotional work', for a much greater network of actors.

It may be that one difference that an understanding of technology brings to the social defences against anxiety thesis (Menzies Lyth, 1960; Armstrong and Rustin, 2015) is that the enrolment of technology as a defence gets played out more actively (by more actors) and quickly does so beyond the control of humans. The 'automation' of a defence against anxiety via technology, such as an email from a manager about targets, is instantly communicated across the organization through the PCs on every desk and the phone in every hand.

5.2.5 Practitioners use technology to defend against uncontained anxiety

Technology does not function as a single defence but as different defences to different people. It can be used by different people to evacuate anxiety, rather than process it. For example technology is implicated in each of the following actions:

- Client manages anxiety by calling out-of-hours clinician
- Clinician manages anxiety by making record on the system
- Head of Service manages anxiety by monitoring outcome data

Technology is used as a systemic defence against anxiety; to hold some of the feelings that are not being contained elsewhere. There is a recurring metaphor in the data connected to [*mess, chaos, pandemonium*] and their opposites in [*tidy, cut and dried, neat*]. 'Tidying the chaos' may represent the managing of powerful emotions; of finding ways to keep anxiety under control in a chaotic, disturbing world. This is seen very clearly in relation to the electronic diary where the concrete world [*out there*] is messy but the abstraction [*in here*], the diary, presents it as [*cut and dried*]. This brings an additional viewpoint on Ackoff's use of the term 'mess' to describe, "a system of problems" (1974, p.427). The data demonstrate that technology is used to tidy the mess; an attempt to contain some of the anxiety generated by the system of problems.

Service managers may use technology to manage their own anxiety about chaotic systems, complex problems and their lack of control over them. For the

manager, the electronic diary gives the impression of a managed system. But, as with the collection of outcome data, this is managing at only one level of complexity, the more straightforward things than can be recorded, measured, enumerated; that is, captured by the technology. The technology manages their anxiety about a chaotic system but in reality (at the experiential level) leaves the real chaos, complexity and anxiety unmanaged for those at the 'bottom' of the system.

Practitioners therefore use what they can in their physical environment to help them evade or defend against the anxiety that is both projected into them from the client group, and from management who [*shove it right down*] onto them. This may be in using the [*little discrete boxes*] in the diary or in the sense of something being 'held' when it is recorded on the patient record system. 'It', the anxiety, is recorded by the system. Both the idea of things being 'in little discrete boxes' and technology 'holding' anxiety suggest a substitution for the process described by Bion (1962a) as the container/contained relationship of the mother/infant. For example, the material presence of the keyboard is felt to be an [*anchor*] for practitioners, something familiar and physical that gives a sense that things can be more solid, less chaotic. Somewhere where unknowable thoughts and feelings can become known.

5.2.6 Technology is a failed container

The evidence from the data is that technology is used as a repository for the anxiety projected into it by practitioners, particularly in the absence of containment within the system. Whilst the evacuation of anxiety may provide temporary relief in some circumstances, and technology does act as an intermediary of anxieties, such as when transporting it to other locations, it does not actively process or modify it. Technology does not have the capacity described by Bion (1962a) as 'maternal reverie' in which the mother receives the infant's projections of fear, discomfort and anxiety and *modifies* them so that the infant can introject the anxiety in a detoxified, bearable, form. Therefore it cannot operate as an effective container of anxiety; it is a *failed container*. Bion (1962b) used the term 'alpha function' to describe the ability to create meaning out of raw, unprocessed sensory data, which he called 'beta elements'. The mother's reverie is her alpha function through which she modifies the child's

anxieties. This function is likened to the digestive process in which the beta elements are metabolised into 'digestible' alpha elements that are 'fit for consumption'; that is they can be 'thought' by the infant's emerging thinking apparatus (Waddell, 1998). Alpha elements form the building-blocks of thought upon which more complex systems can be built. This includes abstractions, concepts and models. However, if there is no alpha function then the beta elements remain undigested.

Participants describe something [*being taken in and not metabolised properly*] by technology. The un-thought elements are [*toxic*] to the infant mind and fit only for evacuation; to be got rid of. Likewise, in the data the taking in of 'toxic information' most likely equates to the introjection of anxiety from the client. The participant asks what they are supposed do with this, how do they rid themselves of it. Anxiety is projected into technology; but technology has no alpha function, no capacity to do anything with the anxiety, to process it. Therefore it is returned unprocessed as, what Bion (1962b) calls, 'nameless dread' and there are repeated references to 'dread' in the data that demonstrate this is happening.

As well as the potential emotional impact on staff of this finding there are implications for the capacity for thinking in the system. Bion (1962a) considered thinking to be fundamentally an emotional experience, and that feeling proceeded thinking. "Thinking is an emotional experience of trying to know oneself or someone else." (O'Shaughnessy, 1981, p.181). Bion designated this type of thinking with the symbol 'K'. He saw projective-identification as a primitive form of communication in which the infant projects his/her feelings and fears into the mother so that she may 'know them' in a way that the infant cannot. This forms a 'K link' between them as the baby begins to introject both their own modified, knowable, feelings and also the object of the mother who is able to think. Repeated projective-introjective cycles of the mother providing containment in this way develops the infant's capacity to think.

Crucially for the current thesis, if the object into which the infant is projecting is unable to provide containment and form a K link they are deprived of an object that is able to retain and think about their intolerable feelings and anxieties,

rather than one that simply evacuates them. This may lead to a situation where excessive use of splitting and projective-identification replaces thinking based on the reality principle and symbolic communication. In this situation K is stripped of all significance and becomes 'minus K' which is, "understanding denuded of all significance until only misunderstanding remains." (O'Shaughnessy, 1981, p.182). Technology cannot provide active containment where forming a K link is possible so does not help the practitioner to K, to know or think about their anxieties. It can be argued that technology generates minus K where meaning is denuded. This may be what is happening in relation to the collection of data which is seen to have no obvious purpose (see section 5.3.6 below), and is certainly not in the service of helping the practitioner to think.

5.2.7 Summary of Section

Services are organized through humans and technology which are constituted as a network of actors from which neither can be disentangled as separate entities, though each has different properties and capacities. The entanglement contains powerful emotions including fear of catastrophe and anxiety that arise both from the task of caring for particular client groups and from management concerns about 'messy' systems. Communication is mediated by the artifice of technology and all actors are dependent upon the network for their ability to function. If other forms of containment are not available, such as supervision and team working, then staff may project their fears and anxieties into the objects that surround them including computers, phones and other forms of technology. These however cannot do anything with these emotions so fail to provide active containment for the practitioner and their feelings. Dependency on technology fails and the distress of staff is further increased. This in turn impairs the capacity for thinking and making sense of experience. This situation is likely to become worse over time as the balance of technological and human actors shifts increasingly in the direction of technology and thus the overall capacity of the human services to work with and process emotion is diminished.

5.3 Technology Mediates Powerful Forces which Act on the Organization of Human Services

The data and findings discussed in this section address the research question by demonstrating that technology is a significant actor in the human services and in this role it mediates forces that drive organizational processes. A number of key *actions* of technology are identified from the data and in particular the way it affords certain forms of organization and constrains others. As such the thesis develops human relations thinking by positioning technology as a symmetrical actor to humans in those relations. The findings enhance an understanding of some of the problematic aspects of technology in human services organizations by exposing its role in power relations and a mediator of specific discourses that may not be requisite to the tasks of health and social care.

5.3.1 Technology transports work across boundaries and onto individual practitioners

Information and computer technologies have many positive capabilities, such as the storage and processing of data, that far exceed similar skills in humans. Technology is a powerful actor; it has afforded the disappearance of whole medical records departments. These have been replaced by individual clinicians managing patient records. As a result, information governance training has become mandatory for all staff and the risks associated with data management placed on practitioners. A property of technology is to shift workload onto individual practitioners that was previously held at a collective, service level.

The evidence from the data supports the affordances and constraints approach of Zammuto et al., (2007). The affordances of technology come through strongly in the data; whether this is enabling international study groups, accessing information quickly on the internet, texting clients, allowing data entry to be completed from home and records accessed in the middle of the night. These affordances are seen to greatly increase the efficiency of practitioners. They become [*Superhuman robotic agilely working*]. But is efficiency of this type what is needed, what is most effective, or what is most healthy for the individual staff member, client or service? This is underpinned by a question

about what is valued by services; workers' wellbeing, or technology to make people more efficient. As the participants say, an emphasis on [*investing in people*] now seems to have been replaced by investment in technology. This is supported by the fact, reported in Chapter 1, that only 1% of the £4.2 billion allocated to IT development in the NHS in England is identified to develop the workforce. Technology *could* be used to limit work and manage things better for the practitioner, rather than manage the practitioner 'better' for the service needs. So the affordances are limited by the particular discourses and forces dominant in the services. Technology may afford only a narrow range of possibilities that are in the service of one reality and not another. These discourses are discussed below.

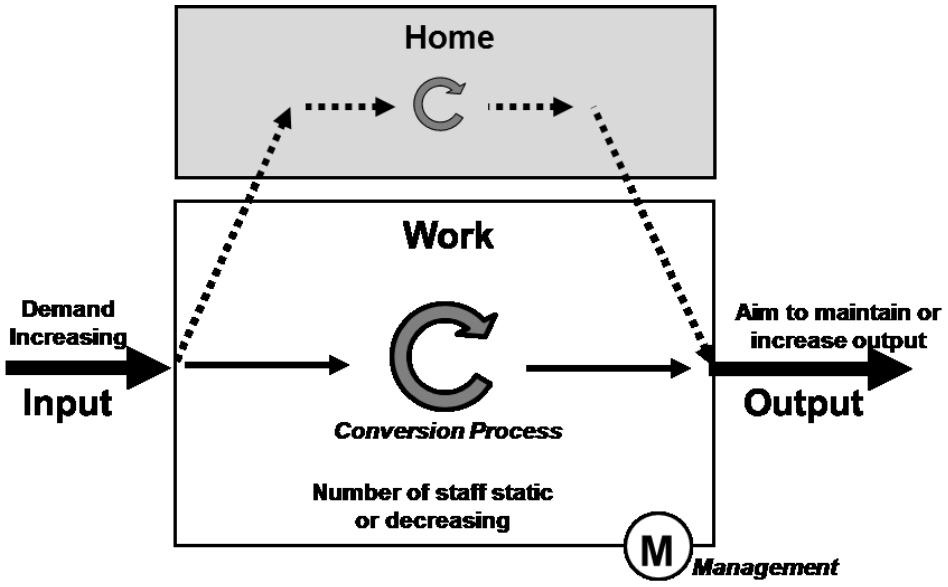
A particular property of technology that emerges from the data is its ability to transport forces or actions across boundaries. This boundary crossing property of technology was exemplified during one of the social photo-matrix groups when a participant checked her mobile phone during the break. This allowed work information and considerations, and perhaps anxieties, to intrude into the research setting. The 'intrusive' quality of technology might be thought about as being part of an Oedipal dynamic in which technology facilitates a desire to not be excluded from, for example, the relationship between the clinician and patient. Technology such as patient reported outcome measures allow managers to see into the therapy room and across the boundary of the clinician/patient relationship in ways that would not have been possible previously.

Technology also has the capacity to encroach across the work/home boundary and in so doing shift workload and anxiety onto individual staff. In services the laptop and remote access to electronic patient records together afford home working, outside office hours. This 'allows' the worker to go home and complete records there, but in so doing it extends the work in both space (home) and time (9pm)[35]. Technology has provided a solution to the otherwise impossible task

[35] An alternative approach (not present in the data) is that practitioners complete the records during the clinical session, in the way that most GPs do. This could be seen as technology affording an efficient use of time, but might also be seen as an intrusion into the practitioner-client relationship and the protected time and space of the clinical session. As noted in Chapter 1, in the US medics are now employing 'scribes' so that they can maintain a relationship and eye contact with the patient in the room.

of meeting increased demand with fewer staff whilst maintaining output. In fact the perceived efficiency is actually the free use of individual practitioners' resources by the system. What has happened is that part of the work process has been transported, via technology, into a different domain – public to private, visible to invisible, formal to informal, collective to individual. This can be represented in the following open systems diagram which develops the work of Miller and Rice (1967) and Roberts (1994):

Figure 3: Technology crosses the system boundary



Technology mediates the input-conversion-output process in the sense that it transports part of it into a new domain, crossing boundaries that would otherwise be impermeable. In so doing, technology creates a new process that would not be possible without it[36]. Whilst it may be argued that some staff 'have always taken work home with them' there is something qualitatively different about the way technology extends work processes into the home, and the fact that it is routine tasks that are being performed.

5.3.2 Technology facilitates mobile working which changes team relationships

Technology can be seen to facilitate different ways of working that act on the organization of teams and the physical estate of services. 'Agile working' is

[36] In fact it would probably be resisted by staff and unions.

being promoted across the NHS (NHS Employers, 2013) as, “a transformational tool to allow organisations to work smarter by eliminating all barriers[37] to working efficiently” (Employers Network for Equality and Inclusion, 2013, p. 3). However, ‘agile’ is merely a concept that has to be materially translated by technology to become a concrete action. As Clegg et al. (2013) argue, tools, technologies and other practical objects are necessary to make ideologies, visions and desires, such as agile working, a reality in everyday life. They give the example of where the concept of ‘radical egalitarianism’ of the Kampuchean regime had to be materially translated via the organization of the S-21 camp in order to become the concrete act of execution.

Human services with agile working afforded by technology are different from services without it. There may be a wide range of potential or perceived benefits to this, such as being able to take services to patients in the community where they are needed, but it cannot be said that this is a neutral change or that technology has been passive. Technology can be said to be a mediator of ‘ideologies, visions and desires’ in the sense that there is an act of translation from abstract into concrete. For example, in the data, managers are identified as merely ‘shoving’ anxiety onto staff, when their task should perhaps be to hold or mitigate it, whereas the electronic diary is seen to participate in the ordering of services, that is mediate them. This leads to the conclusion that the electronic diary may, in some respects, be more significant in the formation of the organization than the service manager. This follows Clegg et al.’s (ibid) argument that technology artefacts participate actively in the structuring of organization and the distribution of agency. Once a sociomaterial order has emerged humans may no longer be the centre of the network.

Agile working has a particular impact on relationships between staff and the ability to work together in multi-disciplinary teams. The effect on inter-personal relationships is apparent in the example of a participant being rude to someone hot-desking in her office. Agile working destroys their base so they don’t have a ‘home’, which is a word used several times in the data. They have to recreate this in their own home or in their cars but can’t do it as a team. The sense is of individual lone workers with no home where they can get support from their

[37] The ‘elimination of all barriers’ is pertinent given the discussion above.

team. Technology is agile but it is more difficult for people to be so. They have different constraints. One participant talks about the difficulty of not finding a toilet when doing rural visits. What the data suggest though is that the disruption at a physical level also causes a rupture at the symbolic, relational and emotional levels. That is, the loss of a physical 'home' may cause the loss of a symbolic 'home' and weaken the sense of a team working together on a shared task. This in turn may reduce the containing function of teamwork. One participant talks about moving between teams on rotation when those teams are 'virtual', they don't exist as a 'thing'. If there is no physical base, or sense of a team, then what is it exactly that she is moving *to*?

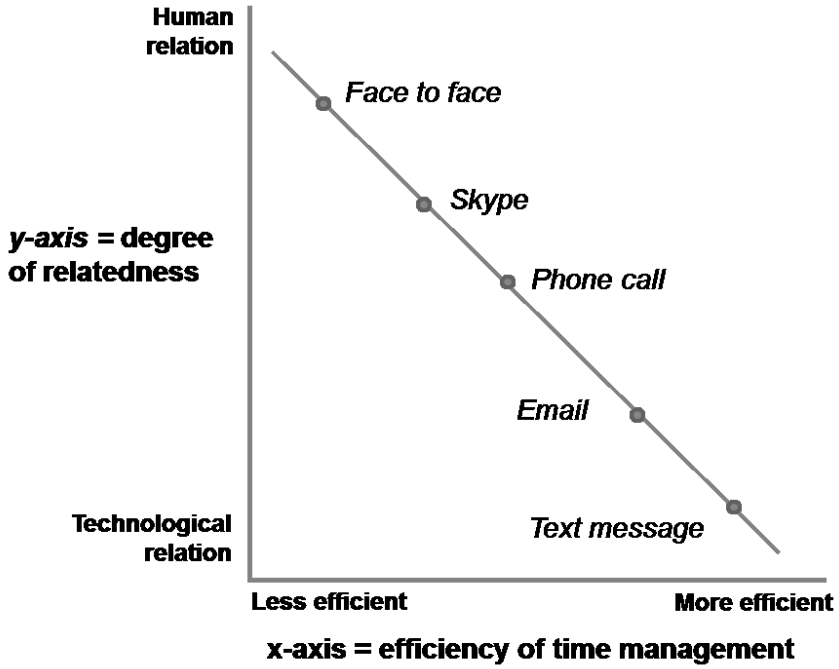
5.3.3 Technology facilitates instant communication which changes relationships with service users

Technology is now integral to practitioners' relationships with clients, just as it is increasingly part of the workplace. There are many potential benefits to this but also challenges. Foster carers have to be IT literate to help children participate in the world otherwise they would be [*deprived*]. There is also evidence that mobile technology is changing the relationship between patient and practitioner in that they can be contacted [*anytime, anywhere*]. From the practitioner's perspective this is [*intrusive*] but for the patient it is [*empowering*]. It may be positive that technology allows for the patient to access care at any time but it means that responsibility for managing the boundaries of the relationship with distressed patients and families, and the anxiety associated with that, is transferred to the individual practitioner. 'Empowerment' is another concept that is being materially translated by technology.

A participant puts forward the theory that the different types of relationships afforded by technology should be seen as a hierarchy of technological and human relatedness. The theory is not only that different forms of relating change the level of human connection but that, as efficiency increases, so relatedness declines. Technology allows different forms of connection to be made, but these should not be confused or conflated. The hierarchy of technological and human relatedness is represented in Figure 4. It may be that one of the effects of moving along the x axis is to increase technological mediation and with this the possibility of distortion. Opportunities for

misunderstanding may increase as the 'veneer' of technology increases and greater minus K is generated[38].

Figure 4: Hierarchy of technological and human relatedness



It may be helpful for organizations to consider the implications of this correlation and not assume that one mode of relating is the same as another, or that benefits on one axis offset losses on the other. Perhaps what is important is to understand how and when to use each appropriately in relation to the needs of the client whose own ways of relating may be dysfunctional, and to make decisions that are clinically led not technologically determined.

5.3.4 Technology imports corporate discourses and values into services

The evidence is that technology affords particular ways of working and organizing that structure human services and, in this section, that technology facilitates the importing of discourses associated with business and commerce. This might be seen as the ongoing realization of the discourse known as New Public Management (NPM) (Hood, 1991) which emphasises management techniques developed in business, such as the measurement of performance against targets and the use of competition, as a way of driving efficiency and

[38] Evidence for this may be seen in Finding F3 where the increased use of electronic records creates [*an absolute misunderstanding of what certainly psychotherapy does and should be doing*] in relation to the task of recording therapy sessions.

quality improvement. The data indicate that technology may be an additional vehicle for importing NPM into the public sector. The evidence from the data is that technology materially translates specific models of service, ways of conceptualizing services, and organizing them into practice.

The discourses or models identified in the data include: instant access, 24/7 services, agile working, efficiency, cost reduction, audit. These can be seen as some of the *forces* acting on services and being translated by technology. Discourse in a general sense refers to a formal way of thinking that can be expressed through language. Discourse defines what can be said about a particular topic, what is seen to make sense in relation to it and therefore how we can think about it. For example, illness is primarily seen through the medical/biological model (Foucault, 1976). In mental health care the Diagnostic and Statistical Manual of Mental Disorders (DSM–5) (American Psychiatric Association, 2013) is a key example as it defines how we understand particular conditions, categorize them and delineate one from another. As such it directs the work of professionals and the structure of services. Foucault (1972) extended the concept of discourse to suggest that discourses in fact define our perception of reality itself. As such, those whose ways of working are aligned to a dominant discourse, and have their work validated by it, have significant power over those who do not, who are seen as invalid in terms of the discourse.

It may be asked whose interests the technologically translated discourses identified in the data (instant access etc.) are serving and what type of service is produced as a result. Is the service structure 'requisite' (Jaques, 1995) to the task it has to perform. If technology 'creates' structure it does so on the basis of the model built into it (Ash, Berg, and Coiera, 2004), its operating model. If so, how likely is this to be requisite to the task of the organization, its clients, and the needs of those who work in it, especially when the task is to work with the dynamics of illness and disturbance? The model in the technology (e.g. the way data has to be entered into the patient record system or how appointments are ordered using the electronic diary) is not based on the reality of these dynamics, and, if it isn't, argues Jaques (ibid) it will be the cause of anxiety. An example from the data is that technology affords, possibly creates, agile working and this makes sense from within a technological frame and a business discourse. But is

agile working requisite to the emotional containment required for working with high levels of disturbance? The data would suggest not, or at least that one does not necessarily follow from the other.

5.3.5 Corporate discourses conflate the value of technology and humans

Different kinds of outcome have meaning within different discourses and at the level of the concrete compared to the level of the abstract[39]. The corporate advert (image 6) is the 'new vision of the future' with staff working further along the x-axis of the hierarchy of the relational, less face to face, more technology and more [*business like*]. Within this discourse, the practitioner him/herself becomes something different, where it makes sense for staff to be available 24/7 and where they are not [*valued*] as people who need containment. The nature of the work needs to be held in mind, and the impact on the worker. The work is [*emotionally difficult*] and this is not represented in the service data or at the level of the model. A participant asks what all the devices are *for*. It appears the answer is to measure, record, abstract and transform the service into something other, where [*if you don't record it, it didn't happen*]. This means that the service viewed at the data level is more real to those who view only this surface. At this level practitioner and technology are conflated and equated. They are both units of resource to be deployed, used and discarded.

5.3.6 Staff are a commodity that has to be audited and controlled

At the abstracted level the practitioner may be viewed as a unit that has to be audited, counted and stock controlled. They are a resource that can be [*deployed*] and [*wheeled out*] like the part in a machine, a process which is essentially dehumanizing. The emotional content of the work, and the practitioner's need to process that, may be lost because at the data level the emotional content of the work has been stripped out. The practitioner may end up being seen as a 'black box' where only input/output is considered and not what is required to resource the (internal) conversion process. That is, the processing of emotions and the capacity to reflect upon them and transform them into thoughts.

[39] Section 5.4 discusses the meaning of 'levels' in more detail.

Under external pressures such as performance management and the threat of competitive tendering the focus of the service may shift towards data production in the hope that it will demonstrate the value of the service. This could be seen as an *anti-task*, generated by basic assumption behaviour (Bion, 1961) as a response to anxieties about psychological survival (Roberts, 1994). There is evidence from the data of all three modes of group functioning identified by Bion (ibid): dependency (baD), in terms of a passive reliance on technology and imbuing it with [*God like*] agency; fight-flight (baF), which is evident in the participant's anger or their flight from [*those environments*] where technology dominates; and pairing (baP) in the sense that if they can join with technology it will solve all problems and transform services in, what might be seen as, a magical way. The anti-task behaviour subverts the 'normative primary task' (Lawrence, 1977) of the organization (i.e. providing human services) and may be seen as essentially a turning away from painful reality. Organizational systems and clinical practice are being orientated around the collection of data, which, it may be surmised, becomes the 'phenomenological primary task' (Lawrence, ibid) which is the task than can be inferred from an organization's practices, but of which members may not be fully aware.

This is demonstrated by Wolpert making the case for, "all frontline clinicians, managers, commissioners and board members [to] become skilled in use of sophisticated statistical process control methods" (2014, p.143). Everyone should become a statistician in order to achieve the phenomenological primary task of data processing. But is this in the interests of, or at the expense of, the real (normative) primary task of these services such as providing healthcare or child protection. It appears from the present research findings that data collection isn't being used effectively to improve practice or outcomes for service users; that is, the 'clinical utility' of outcome measures promised by Wolpert (ibid) and contrary to national guidance which dictates that, "There should be no measurement without direct clinical utility." (Law and Wolpert, 2014, p.20). The reality for participants in this study is that more and more data are being collected with little sense of how it is being used.

The completion of data with no obvious purpose is reminiscent of prisoners digging holes and filling them in again, a pointless task that serves only to instil

discipline. With this in mind it is painful to hear the participant's words when she says, [*I love the fact that I can get home in time for tea sometimes and then I can do my notes at home*]. Resistance has been disarmed and the idea that doing notes at home is [*really helpful*] has become internalised as normal. This is indicative of the taming and discipline of labour identified by Foucault (1975) in the concept of 'labour as dressage': "Labour in its dressage sense, then, is non-productive, non-utilitarian and unnatural behaviour for the satisfaction of the controller and as a public display of compliance, obedience to discipline." (Jackson and Carter, 1998, p.54). The function of data collection in the human services can therefore be seen as, in part, disciplining the professional workforce.

5.3.7 Summary of Section

The evidence discussed in this section showed technology as a powerful actor, in some cases more so than people. This evidence comes from the approach of considering technology to be a symmetrical participant in a network of human and non-human actors in which power and agency circulate but are not the property of either. Technology affords certain ways of working and organizing and constrains others. This affordance is driven by particular forces and by discourses from business where models of 24/7, instant access, mobile services are appropriate to the task but which may not be so in the human services. In materially translating such discourses into practice, technology can be said to disrupt the primary task of human services (health, social care, education etc) into an anti-task of data production. In so doing, professional staff are positioned as units of production. Changes to services are led by technology rather than clinical or practice considerations, such as the impact of agile working on teams undertaking emotionally difficult tasks, or how different modes of technological and human relatedness may be efficient in certain circumstances but not effective in others. It can be argued that technology creates a misalignment between models of services, how they are conceptualized, and the reality of their delivery in practice. It creates non-requisite structures. In section 5.4 evidence is discussed that shows how this occurs.

5.4 Technology Affords a Process that Transforms the Reality of Human Services Organizations

The data and findings discussed in this section address the research question by demonstrating the impact of technology on human thinking *about*, and acting *on*, the organization of services. Evidence is provided that a central way in which technology acts as a mediator of organizational processes in the human services is to transform the reality of those services. The thesis develops current understanding by proposing that not only does technology encourage the abstraction and reduction of lived experience but that these simplified models or representations of the world can be mistaken for reality itself. They are then acted upon *as if* they were real and this impacts directly on the concrete experience of those working in and using the human services. The findings develop a linking of psychoanalytic and process theories in novel ways to bring new understanding to technology's role in the relationship between our internal and external worlds.

5.4.1 Technology affords the process of abstraction from lived experience

> "Each fully realized fact has an infinitude of relations […]. We can only conceive it with respect to a minute selection of these relations. These relations, thus abstracted, require for their full understanding the infinitude from which we abstract. We experience the universe, and we analyse in our consciousness a minute selection of the details." (Whitehead, 1938, cited in Hernes, 2008, p.32)

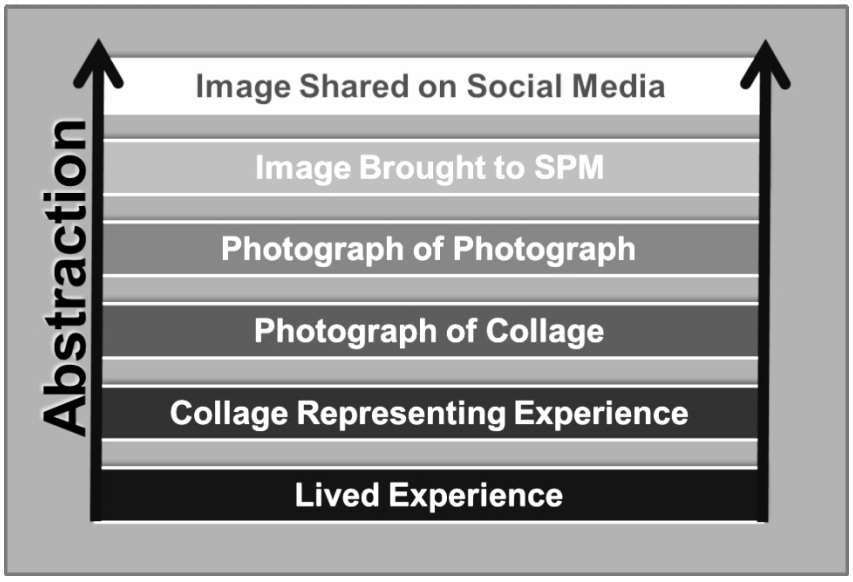
The world in general, including organizations, and perhaps especially the human services, are complex and unknowable in their entirety. The quote from Whitehead above indicates that, "The totality of what we are trying to describe escapes our conceptual abilities" (Hernes, 2014, p.194) and that abstractions are essential to help us to understand our experiences. However, abstractions may also be deceitful as we have a tendency to forget that they are abstractions from experience, and not the actual experience itself. This is the danger that Whitehead (1929) referred to as the 'fallacy of misplaced concreteness' and which is discussed below in relation to data that indicate technology's role in this process. The evidence in this first section is that a significant action of technology is to afford, and perhaps encourage, the process of abstraction.

A photographic [*snapshot*] is given in the data as an example of how something three-dimensional (3D) – moving, existing over a period of time – is transformed into something two-dimensional (2D) – stationary and fixed as a moment in time. The snapshot is an abstraction from lived experience and the camera is the technology that affords this. The same action is seen to occur in recording an event for the purpose of producing data where the original experience is flattened into a 2D representation. In this new state the image is transferable on the phone, and then beyond that via email and social media. It becomes a [*kind of currency*] and is transportable. Similarly, patient data can be shared widely and has a different value to the organization than the event itself. Technology is a medium through which some-thing becomes some-other-thing. It conveys, transmits, communicates and turns an experience into an entity. Whitehead's philosophy is that, although the world is an ongoing process we think about it in terms of entities, an entity being something that has defined boundaries and thus can be 'talked about', such as a concept or theory. Whitehead (1929) rejected the idea that an entity can have a simple, spatial or temporal location. They are always located in relation to multiple other entities in time and space, and so it is an error to think of them as having 'simple location'; sans relation, so to speak.

A process of simplification by abstraction from a complex picture is seen in the videos made by young people to 'represent' the work of CAMHS. These are highly selective as only a small proportion of service users are likely to be willing and able to talk on camera about their experience of mental illness and of services. The process is likely to exclude a whole range of children and young people who are either more seriously ill or otherwise unable to speak about themselves in that way. What gets produced as a result is a narrow representation of the reality of services, [*a very, very narrow scope of the field*]. The electronic diary is a further example of a technology that is not able to reflect all aspects of the service, such as a conversation with a colleague, because it has fixed parameters and limited ways of recording actions. It is an abstraction of the complexity of the service itself, albeit a necessary one in order to make sense of the 'fluid' world.

The process by which technology generates abstractions is seen in the collage (Image 8) produced by a group of young people to represent their experience of anorexia. The collage itself is a technology. What is seen in the image is one person taking a photograph of the collage and a second one (the participant) taking a photograph of the photograph being taken. The experience can therefore exist at multiple 'levels' of abstraction; as a collage; as a photograph by staff to record work done; as an image brought to the SPM to represent 'technology at work'; and as an image shared by one of the young people on social media. It can be seen that at each level the meaning of the image may change significantly and also that as it goes 'up' the levels its ability to be transported to other places increases. Technology facilitates a transformation in the properties of the image and increases the available levels of abstraction. This is represented in Figure 5.

Figure 5: Levels of abstraction



5.4.2 Technology encourages a process of reification

Hernes argues that organizations oscillate between 'realms of action' and 'realms of modelling' and, "there is always an emergent, nascent, 'here-and-now' world alongside a more formalized world" (2008, p.5). Whitehead defined the two realms as 'concrete experience' and 'abstraction' with the latter needed to make sense of the former. "The movement between concrete experience and abstraction is, as Latour points out, a *reversible transformation*, in the sense

that abstractions influence concrete experience as well." (Hernes, 2008, p. 6, *emphasis added*). But for Whitehead the key point is that, "abstractions have a nasty way of taking over from concrete experience, in the sense that they may be mistaken for concrete experience." (ibid, p.6). This is the process of reification in which something abstract or conceptual is converted into, viewed as, something concrete. The model is seen to be the same as the action; the map the same as the territory.

In relation to the collage, technology inverts the participant's view that value is in the experience so that instead the value is in the data, the record of the experience. This is the *level* at which managers, commissioners and policy makers *see* the services. It is only the surface that is accessible to them, the 'auditable surface' (Cummins, 2001), so this is what has value to them. Resources are put into producing the surface effect in order to create the sense that they are genuinely observing, and understanding, what is happening in the service. As a result the record becomes more significant (a greater signifier) than actually doing the piece of work with the service user.

Additionally, it can be hypothesised that one difficulty presented by technology use is that its products, such as data, charts or tables, give a powerful appearance of being true and therefore being harder to question or interrogate. Compare for example a therapist saying that their client 'is feeling a bit better' to one saying 'they have improved to point 5 on the standardized scale'. The latter has an appearance of 'thruthness', of validity and accuracy absent from the former.

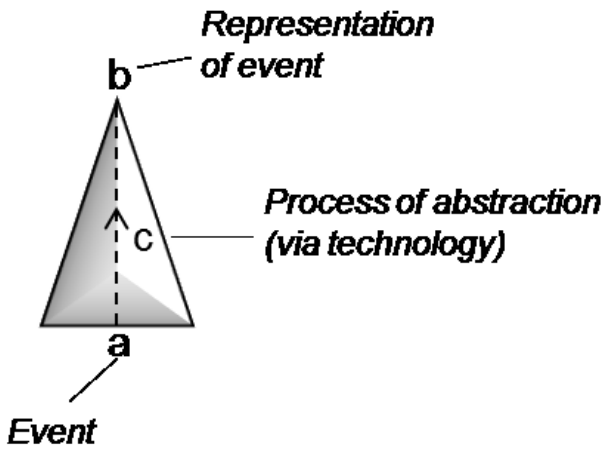
The electronic diary, when used for client appointments, abstracts the complex relationships with service users into simplified information that is required to manage the system: how many time slots, how many clinicians, how many rooms, therefore how many clients can be seen. The detail of which specific time, clinician, room or client becomes less important, but for the clinician and the client these factors are the crucial ones. The system therefore needs to work at both levels. The danger is that the higher abstracted level is prioritised, perhaps because this is where power is held, or as a defense against the anxiety of engaging with complexity, and the distinction between the two levels

is lost. The abstract level is reified as the important and 'real' level. The complexity of the 'messy' relationships, that require additional thought and perhaps [*a conversation*], that don't fit the model, can be lost. The following is a key quote from the data:

> [*It's quite phenomenal when you start thinking about it isn't it? I mean just the fact that if it's not recorded it didn't happen, what about, you know, you start seeing the world that's inverted, from, so the stuff that's on one level is the real stuff which is actually people being together and people moving together in space, bodies, speaking, being together becomes the other end of a pyramid from the representation of it basically and the way that it's negotiated, manipulated and reproduced. Yes, it's bizarre isn't it when you think of that*.]

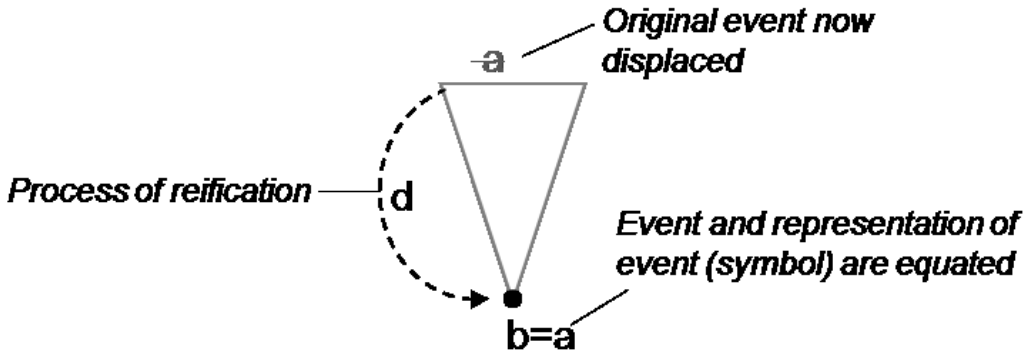
Two things are being expressed here. There is the level of experience, [*real stuff*], which is [*people moving together in space, bodies, speaking*]; and then there is the level of the [*representation*] of that experience which is the level at which it is [*negotiated, manipulated and reproduced*]. This confirms the data represented in Figure 5 above that experience can exist at different levels of abstraction. Here though it is seen as a pyramid with a base of [*real stuff*] reduced to a narrow point of [*representation*]. The process is shown in Figure 6 below in which event **a.** is transformed into symbol **b.** via process of abstraction **c.** Although the participant doesn't say this specifically it is inherent that the abstraction from **a.** to **b.** is enabled by technology, such as through an electronic record system or a phone camera. That is, the process of abstraction is mediated by technology.

Figure 6: Process of abstraction



The second thing being said is that what is happening in services is that the pyramid is [*inverted*]. Whilst it is not completely clear what the participant means by this it may indicate that the representation replaces, or is mistaken for, the real experience. That is, symbol **b.** is equated with event **a.** via process of reification or concretization **d.** as shown in Figure 7. One effect of this is that the event is flattened to a point with simple location.

Figure 7: Process of reification



As a result, the representation, abstraction or symbol is focused on and valued rather than the experiential event; the abstraction is mistaken for the event itself leading to a [*bizarre*] reality in which the symbol is equated with that which it symbolises. Instead of both being held in mind the symbol (representation, abstraction) replaces the symbolised (real stuff, events). The abstraction is reified and loses its relationship to the real world from which it emerged and thus it becomes impossible to make the return journey, that is to reverse the transformation from **b.** to **a.** This is exactly the fallacy of misplaced concreteness described by Whitehead but significantly it can also be thought about in psychoanalytic terms as the process of 'symbolic equation' (Segal, 1957).

Building on Klein's (1946) analysis, Segal (ibid) identified that an attribute of paranoid-schizoid functioning is the inability to distinguish between the symbol and the thing symbolised; the two are equated. The ability to gather up disparate emotions and sensations and represent them in symbolic form – words, play, music, pictures – is an important step in human development

(Waddell, 1998). Following Bion's (1962a) typology referred to above, the disparate beta elements are transformed into more meaningful alpha elements though the containing alpha function[40] and they then form the basis of symbolic expression. This ability is impaired under conditions of stress and anxiety that may increase the use of defences associated with the paranoid-schizoid position.

As Menzies Lyth (1960) argues, the ability to symbolise presupposes considerable psychic integration which defences, especially splitting and projective identification, impede. As a result, individuals, and perhaps systems, collapse into concrete thinking. This view is confirmed by the data from the present study. What the research adds to the social defences against anxiety thesis is that technology is implicated at each step of a process by which increased anxiety generates defensive systems which interfere with the necessary process of representing raw experience symbolically, in abstract form. Most importantly, technology is implicated in a failure to maintain the sense that the symbol and the thing symbolised are connected but different. It encourages the abstraction of simplicity from complexity and the valuing of the former. Both abstraction and symbolisation are essential for making sense of our experience of the world. Error occurs in equating either with concrete experience itself.

One consequence of symbolic equation is that the anxiety aroused by the original event, sensation or object may be experienced in full in relation to the symbol (Waddell, 1998). So, although the process of abstraction may, in part, be a defensive distancing from raw experience, this defence fails if the symbol cannot be held in mind separately. Young (1994) argues that the symbolic realm is the realm of meaning and that if we lose our capacity to symbolise we lose our ability to understand, that is, to make sense of our concrete experience and the emotions it generates. It is also linked to caring and empathy through, "the emergence of reparative capacities which become possible when thinking no longer has to remain concrete" (Young, 1994, *no pagination*, with reference to Steiner, 1987). There may therefore be links between the processes being described here and the so-called 'crisis of compassion' (Sehgal Cuthbert, 2012)

[40] which, it is hypothesised, technology lacks.

identified in the wake of scandals at the Mid-Staffordshire NHS Foundation Trust and elsewhere (cf. Francis, 2013; Neuberger, 2013).

5.4.3 The error of misplaced concreteness creates as if services

The data show that an action of technology is to reduce lived experiences to abstractions which may replace the experiences they represent. What is particularly significant in the data is that not only is the error of misplaced concreteness taking place, but this error is being *acted upon*. It is *as if* the abstraction – the record, the photograph, the test score, the diary entry – is the same as the action or event – the conversation, the group activity, the change in mood, the consultation. If, for example, the record is acted upon *as if* it were the same as the experience of that young person in therapy at that time (i.e. that it contains the 'full picture' of that moment, captures all that it was), then what follows from it – a formulation, clinical decision, intervention, referral – has taken place at a new level of abstraction, the *as if* level. The 'realm of action' and 'realm of modelling' are equated and the model acted upon *as if* it were concrete reality.

This comes through strongly in the long quote about the diary in Finding F3 (p. 119). The diary [*presumes that everything we do is the same*]. It is *as if* all practitioners, all clients, all ways of working, all types of interaction are either actually the same, or can be made to be so through an homogenizing system. The diary provides a comforting picture of a service *as if* it were neat and tidy, manageable, contained and this may defend against anxiety. As the participant says, the model [*stands instead of reality rather than representing it*].

However, an *as if service* works only if the clients fit the abstraction 'client', like the ones who appear in the videos or in the data summary that creates an 'average service user'. If a service is commissioned – or a care pathway planned, or a practitioner trained in an intervention – on the basis of the *as if client* – that is, on the basis of data abstracted from complex, messy reality to a simple, neat model or formal tool – then a simple, neat service, pathway or treatment is what will be provided. An *as if* service; a virtual reality service that works at a particular level of abstraction that is not reality, but has been mistaken for it. When the *as if* service meets the *as is* reality, with all its messy

complexity, its difference, its powerful emotional content that was never part of the data, then the outcome can only be problematic.

The formal tool, such as a protocol or electronic medical record, is likely to malfunction when set free in the complex world it supposedly models (Berg, 2004). This is described very clearly by Rizq (2012a) in relation to her colleague in an IAPT service who was asked to assess an individual on the basis of a manualized procedure, which not only failed to help her to think about and address her patient's anxieties, but also had a dismaying impact on her patient. The patient's needs and the service 'model' were misaligned:

> He does not have the correct 'symptoms' that can be fitted into what the service provides; the feelings that he comes for help with cannot be itemized, objectified, quantified, evaluated or measured according to the service's policies and protocols, which themselves serve to abolish any acknowledgement of the very loss they engender. (Rizq, 2012a, p. 330)

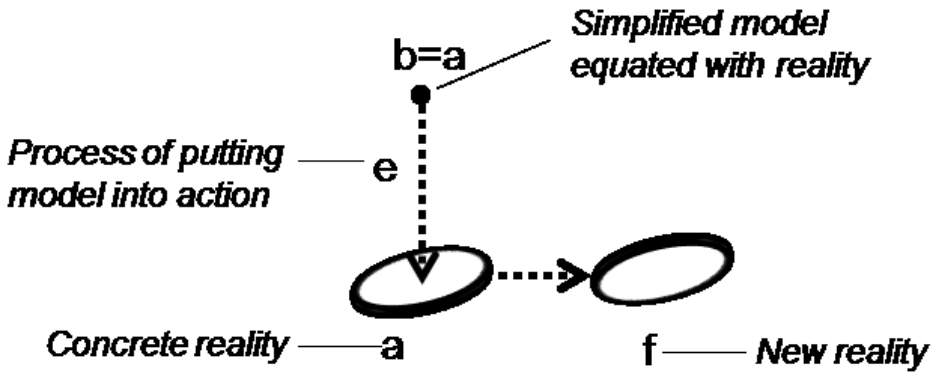
This confirms Berg's (ibid) and Ash, Berg, and Coiera's (2004) observation that the models built into formal tools 'clash' with the actual nature of the work. Rizq argues that, "to confuse what constitutes good clinical work with its 'auditable surface' or representation can all too easily sponsor a perverse relationship to reality where clinical practitioners at all levels are drawn into a false or illusory relationship to their work." (2012b, p. 21). This creates an *as if* or 'virtual reality' service where the signifier has become more important than that which is signified. Vansina adds that 'virtual worlds' in organizations are on the increase and are essentially unhealthy because, "They erode the ability to distinguish what is 'real' or 'true' from what is 'make-believe'." (2013, p.xviii).

The evidence is that technology is implicated in an iterative process of making and unmaking organizations as, "a journey from the concrete, living experience, via abstractions, and back to concrete, living experience." (Hernes, 2014, p.21). Distortion may occur in the return to the concrete as the abstraction masks the real complexity from which it originated. Hernes says that to avoid misplaced concreteness we should not try to avoid abstractions, as these are essential, "but to be mindful of the journey back to living concreteness, that is, back to organizational life as it is lived." (2008, p. 21). It can be argued that the process

of reification creates a distorted 'organization-in-the-mind' (OIM) which has real impacts in the way services are organized. The OIM is a product of external and internal 'reality' interacting dynamically (Armstrong, 2005) and if these are equated it becomes harder to face reality *as it is*, rather than how it is imagined, or desired. If the OIM is a reflection of a technologically mediated *as if* reality then one is following a false, distorted map of organizational life and this may lead to error.

This can be shown figuratively. As shown in Figure 7 above the simplified model **b.** was abstracted from event **a.** and equated with it to produce **b=a**. In Figure 8 below this equation is acted on in the organization of the service, via action **e.**, as if **b.** and **a.** were the same. As they are not in fact the same, a misalignment of model and action occurs, creating a distortion of the lived reality of services. This produces new reality **f.** which more closely mirrors model **b.** than reality **a.** The world has been transformed to fit the map (Berg, op cit).

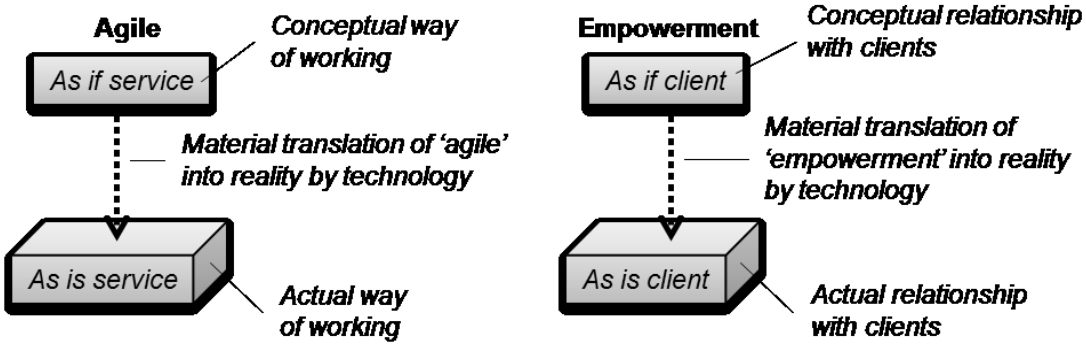
Figure 8: Action of creating new reality



The action **e.** that distorts reality **a.** into virtual reality **f.** is materially translated by technology, as well as legitimized by dominant discourses. This can be demonstrated in two examples from the data where an *as if* idea of what is best for services (in the case of 'agile working') or clients (in the case of 'empowerment') does not fit the reality of the *as is* service or client which are more complex, and complicated, than the model allows. It is somehow forgotten that both 'agile' and 'empowerment' are *concepts* derived from a

particular abstraction of 'service' or 'client', not from the actual service or client as they *are*.

Figure 9: Technology affords the journey from model back to concrete experience



Crucially, in both cases technology is a significant actor in the *realization* of the concept. Mobile phones, laptops and remote access to record systems in the case of agile working; mobile phones and email in the case of empowering service users. If the concept is based on an abstraction of reality that is not coherent with the actual way of working or form of relating, then it won't fit and will potentially disrupt the actual. It will not be requisite to the task. Technology facilities a process by which reality is changed and this may or may not be a positive outcome, may or may not be as intended.

5.4.4 Summary of Section

In section 5.3 it was shown that technology is an actor with agency to translate ideologies, visions and desires into concrete practice. This section has demonstrated the process by which this occurs. Technology facilitates processes, such as data collection, that create an abstraction from reality that helps us to think about our experience of the world. Technology greatly increases the available levels of abstraction. As events are abstracted further from reality so their properties change and they are valued in different ways. As such the abstracted entity may be mistaken for the reality it represents. A distorted organization-in-the-mind (Armstrong, 2005) is created based on perceptions of services viewed through the medium of technology. Actions are taken based on the reified, *as if service*. However, in returning from simple model to complex reality the virtual reality, *as if* service, is found to be misaligned and to misrepresent the concrete reality of the *as is* service from

which it was earlier abstracted. Technology mediates all aspects of this process from lived experience to abstractions, in the reification of those abstractions to a simple model, and in translating the reified concepts back into the concrete world of human services.

5.5 Individual and Systemic Factors Can Be Worked With Thoughtfully in Order to Realise the Promises of Technology in the Organization of Human Services

The data and findings discussed in this section address the research question by demonstrating ways in which organization leaders and consultants can develop more effective ways of working with the human-technology entanglement of services. In order to do so they need to understand *both* the technological and human aspects. As shown in the preceding sections technology appears to increase the potential for a system to become reified, and to perpetuate its paranoid-schizoid functioning. It can therefore be seen that the task of the consultant includes supporting a process of de-reification and a shift towards more depressive position functioning in which thinking, creativity and innovation can be sustained. The thesis advances the systems-psychodynamics approach to consultation by developing practice through which the promises of technology can be realized and the problems minimized. Specific recommendations for developing consultancy practice are given in Chapter 6.

5.5.1 Technology can be engaged with creatively if the context allows

This section is practice focused and is concerned with what the data say about how leaders and consultants might develop a healthier relationship with technology where abstract and concrete are not mistakenly conflated; where concepts are seen to inform but not replace the reality of services. Models help make sense of the world but have to be held at the level of abstraction where they can be played with as an idea. This is difficult and lots of factors in the context of working with the model may militate against flexible, creative thinking. Chief amongst these are the specific anxieties arising from the task to which the model relates, such as the mental health and welfare of children which were the focus of the participants in this study.

An environment is needed where staff are able to engage creatively, with curiosity, with technology as an actor in services. The social photo-matrix demonstrated how such conditions might be created. There are examples from the data of participants showing curiosity about what wasn't directly visible and also a willingness to not know fully the meaning of an image. They didn't treat the image as concretely representing just one thing; it might mean [*various things*]. The opposite is also seen in the data in the choice of some practitioners to [*switch it off*] and not engage with developments. This suggests that a helpful position in which creativity exists is somewhere between 'fully on' and 'fully off'; a liminal space. This requires active containment of anxiety but more specifically the development of 'negative capability', the ability to *not know* or to remain in uncertainties (Simpson and French, 2006).

It is evident that technology does not possess negative capability. It also seems to be being lost in humans in a drive towards certainty and, perhaps, in response to the perceived 'thruthness' of the products of technology such as data, figures, charts etc.[41] French adopts Needleman's (1990) term 'dispersal', "to describe the complex ways we behave when we cannot tolerate the emotional impact of the 'uncertainties, mysteries and doubts' that life inevitably and constantly throws at us." (French, 2001, p. 485). Rather than developing negative capability by managing the frustrations and learning from them, we 'disperse' our energies into action, emotional reaction or rationalisation. An example of dispersal through technology would be the satisfaction of typing an angry email in response to some perceived wrong. Only by having the negative capability to *not* send it, to digest the frustration, perhaps talk it over with a colleague, can we prevent a potentially harmful dispersal of anger. The ability to send to more than one person provides a dangerous multiplier effect; instantly multiple actors would be mobilised, each with their own capacity to further disperse the energy. Instead:

> If we or the system (the group or the organization) have developed sufficient negative capability, we may be able to *stay with the moment*

[41] This is speculative but it may be that negative capability becomes the most important human attribute in the coming world of automation and jobs lost to robots.

> and, by doing so, discover a new thought, a new idea, a new possibility, however slight: we may learn something. (French, 2001, p.486, *emphasis added*).

That is, to stay with the moment *as is* and not transform it into something *as if*. This is how negative capability can help to prevent the creation of *as if services*. It is essential for the journey back and forth between the realms of action and modelling that is required in processes of change and innovation. Similarly, in relation to data, outcome measures, and electronic records, if a state of *un*certainty can be maintained then these can be seen as being a partial representation of aspects of the situation, rather than a truthful report of reality. This is seen in the data when the participant describes seeing and feeling something different each time they look at the image in, [*in a different way, a different light, and in a different context*].

Negative capability can prevent the error of misplaced concreteness and in so doing enable us to see the abstraction as an abstraction, the map as map, and to return safely back to concrete experience as it is lived. Thus it may be said that in supporting and developing negative capability, and in attending to *process*, the organization consultant is engaged in the act of de-reification including giving new meaning to the ordinary and everyday (Zaretsky, 2002). Similarly, psychoanalytic understanding of meaning, sense-making and symbolisation offers, "some insight into a potential process of de-reification" (Young, 1995, *no pagination*) through helping in the recognition of the essential differences between the symbol and the thing symbolised. If the abstraction from the experience is reified it loses its relationship to the real world as the two are equated, and it is either impossible to return from the abstraction (e.g. data) to the concrete (e.g. specific client) or it is done so in a distorted, *unreal* way due to the partialness of the abstraction. Negative capability may aid the successful journey between model and reality by providing balance to technology's positive capabilities and the appearance of certainty. This may create the conditions for adaptive change (Heifetz and Laurie, 2001; Wachter, 2016) including an iterative adaptation of the models built into technologies so that they reflect the reality of services; rather than vice versa. An example might be the way one participant describes using mobile technology differently

to create an effective team-working environment. The 'model' was that this would lead to individuals working alone in the community, but the mobility of the technology also allowed it to be moved into a shared setting because this was what the team needed to manage the complexity and stress of the work.

The transformation of services is often the intended outcome of introducing new technology and new models of practice, and is perhaps necessary if we are to achieve service improvement. However, these may fail if they do not relate realistically to the conditions of the system, the clients and the practitioners in it, rather than a fantasy version of what may be desired based on false or partial representations of reality.

An aspect of adaptive change may therefore be the ability to operate according to the 'reality principle' (Freud, 1915) in assessing the external world and acting upon it accordingly, rather than acting on the 'pleasure principle' in which an instant gratification of desires is sought. This may be what is occurring in the participant who leaves the service for [*the Amazonian rainforest*] or a remote pub. The delaying of gratification in response to the reality of the situation may mirror the toleration of the emotional impact of the uncertainties, mysteries and doubts described by French (2001). If this can be achieved, services and practitioners may be able to realize the benefits of computerization in the way the workers did in the paper mills studied by Zuboff (1988). This is only possible if sufficient containment of anxiety can be provided so that defences no longer inhibit the capacity for creativity, symbolism, abstract thought and conceptualisation (Menzies Lyth, 1960). Linking back to the problems of failed containment discussed in section 5.2.6, if people working in the human services have the capacity to think about their feelings and anxieties, rather than evacuate them, then they will also be able to learn from that experience (Bion, 1962b). The alpha function of containment produces genuine knowledge (K) rather than a surface knowing (minus K) which has no meaning.

5.5.2 Practitioners can reclaim their agency

A key point from the data is that a lot of the forces in the environment of human services are pushing against negative capability and a flexible engagement with technology, and therefore against adaptive change and innovation. The

example is given of David Hockney using technology (the iPad) to create amazing images, but for the participants the reality is that they feel imprisoned by work and technology. Hockney is perhaps the ultimate expression of an independent professional, master of his own craft and therefore the antithesis of how practitioners feel currently[42]. Play is suggestive of movement which may be increasingly possible at higher levels of abstraction where ideas, models and data can be engaged with at a distance from the concrete and from the anxiety it may generate. Therefore a task for the consultant may be to support organizations in creating abstractions, using them to think about services, and then returning from this to reality *as is*, rather than *as if*. The social photo-matrix may be one vehicle for doing this. In order to play with technology in this way practitioners need to be supported to regain their agency and the data show this is possible, but difficult to achieve without good leadership or consultation[43].

One possible problem, exposed in the data, with working at higher levels of abstractions is that service models are dominated by discourses of business and measurement that feel like a [*different language*]. Something that may be required then is for staff to feel they can use that language in a way that makes sense to them and connects to their lived experience; and for the consultant to help them in this. In fact, this occurs in the SPM which helps the group to shift the concept of 'agile' from being something persecuting to something else that they can own and which gives them options. They have not adopted the management version of 'agile' but instead created a version of it that makes sense to them and fits with their experience. They have recognized it as merely a concept with multiple potential meanings (polysemy). It is a metaphor which may stand for more than one thing. This suggests that working with metaphor to retain polysemy may be an important tool for consultants.

[42] It seems essential for any successful service development, including technological innovation, to be led by practitioners and managers who can remain thoughtful, curious, creative and compassionate in the face of the inevitable challenges of change. The data suggest that this may involve a shift from a rigid, constrained approach to 'the work' towards something more playful.

[43] Again, it seems essential that the practitioners who are closest to the lived reality of services, and of client's needs, have sufficient agency to adapt their practice, environment and use of technology in response to their learning from experience. This is however likely to create increased challenges and anxiety for managers and leaders who may feel it is necessary to constrain individual agency in order to manage change centrally.

An example from the data of this regaining of agency is the team that used the flexibility of technology to reclaim a team working space. There are parallels to the 'semi-autonomous work groups' described by Trist and Bamforth (1951) which indicates that this form of organization may be beneficial in working with technology in these new contexts, which in turn may help to address the multi-sided demand (Boxer, 2013) to which contemporary organizations are subject. The advantage being that they allow teams to address the needs of both technical and social systems. The presence of the Angry Birds in the images suggests some aggression may be needed to reclaim agency in this way, and this may in part relate to the energy required to dis-entangle what is important for technology and what is important for humans. Creativity, play, freedom to adapt and grow, and compassion are essential human attributes that have no meaning to a computer. It may be that we have to fight to retain them.

5.5.3 It is important to maintain a boundaried relationship with technology

It appears that in an increasingly tangled world an important action is to maintain appropriate separation, distinction and difference. This becomes more difficult if humans and technology are constitutively entangled, in the sense that they cannot be defined independently but only *in relation* to each other. Examples of important distinctions from the data include: the separation of lived experience from its representation; the needs of technology and the needs of people; positive and negative capabilities; and the distinction between agency (which both technology and humans can possess) and intent (which is a characteristic of humans only). If we were to follow the constitutive entanglement thesis to its logical conclusion it might be argued that these are false distinctions and an indication of a return to a problematic duality of technology (Orlikowski, 1992). Equally though a complete disregard for the difference between humans and technology would seem unhelpful and illogical. It can therefore be argued that there are limits to the relational ontology proposed by Orlikowski (2010) and also central to actor-network theory (cf. Law, 2004). This leads to a critique of this approach which is discussed in Chapter 6.

This is a further indication of the importance of depressive position functioning in which both objects in a pair (or multiple objects) can be valued as important in their own right with distinctive characteristics. The alternative is that one

object is idealised and the other denigrated, or even that only one is seen at all, recognised to exist, whilst the other becomes lost, hidden or expelled. If both can be recognised and valued then the dynamic relationship can be maintained and become the source of creativity, growth and learning. This is indicative of the working through of Oedipal tensions as an important developmental step associated with the child's acceptance of their separate, different relationship to each parent whilst being excluded from the couple as such. This 'third position' (Britton, 1989) is key to the capacity for self-reflection and the reality testing of internal models of the world. These are threatened under conditions of stress and anxiety that may promote paranoid-schizoid forms of functioning including splitting and projection. Britton (1998) emphasises that the working through of the Oedipus Complex and the depressive position are linked and contingent on each other. Further, a pre-Oedipal state may be associated with a desire to intrude upon the parental relationship and the transgressing of boundaries referred to earlier, and which is seen to be a characteristic of technology.

The maintenance of boundaries is important to the work in human services. If technology allows for boundaries to be fully porous then there is no barrier to services being entirely exposed to the dynamics of their clients and being flooded by their projections (Cardona, 1999). Decisions about how technology is used – such as when practitioners can be contacted by mobile phone, or when it is appropriate to complete data entry from home, or when it is effective for a team to be entirely mobile with no physical base – have to be thought about and led by an understanding of the impact of decisions on concrete experience in the real world. The sense from the data is that many decisions are instead led by the fact that technology affords a particular action – collecting more and more data, working from your car, 24/7 instant access – so it is seen as positive or inevitable, especially within the current dominant discourses within human services.

The complex nature of services, and of the client groups, mean that a sophisticated (post-Oedipal) understanding of what is appropriate in what circumstances is crucial. The analogy in the data is to a parent who needs to [*remain adult*] and [*keep a critical mind*] in order to provide appropriate boundaries for their children, and perhaps not to be seduced by the lure of

technology. This suggests that one way for practitioners to reclaim agency would be to take a more 'parental role' (cf. Figure 10 below) in relation to technology use in the services within which they work, and not allow themselves to be positioned as the dependent child. This may also apply to managers and leaders in relation to their 'parents': commissioners, policy makers and the regulatory bodies such as NHS Improvement, the Care Quality Commission (CQC) and the Office for Standards in Education, Children's Services and Skills (Ofsted). Self-reflection, reality testing and the management of boundaries would seem to be key attributes of good leadership and perhaps especially so in the implementation of technology that may significantly change the reality of organizations and services. Supporting these capacities therefore becomes an increasingly important task for organizational consultants.

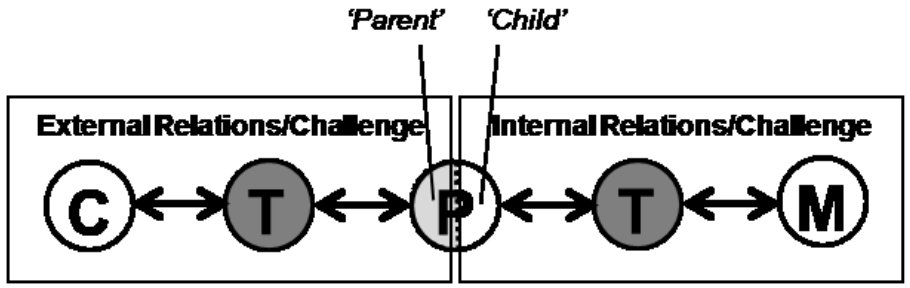
5.5.4 Practitioners face a 'double challenge' in relation to technology

The final two sections of this part of the discussion return to the data about the individual practitioner presented under Theme A in Chapter 4. The aim is to open up the 'black box' of the practitioner so that they are not seen as simply a passive intermediary of forces. This was identified as missing from the constitutive entanglement literature. As technology comes into focus so the tendency is for humans to disappear. To work with the human side of the socio-technical system we need to understand their ways of seeing the world: what is their frame, the lens with which they view the world in general and 'technology at work' specifically? This might be thought of as their 'technology-in-mind'; their internal picture of technology resulting from their experiences of it. Understanding the technology-in-mind of clients may be a crucial aspect of the consultant's work with organizations in future.

The data, collected in 2016, represent a particular moment in the development of technology in the human services and wider society. It was different 10 years ago and will be different again in 10 years' time. Current staff face a particular 'double challenge' in that they are having to adjust to technology development in both their internal and external environments. Externally they have to keep up with technology use by their clients, especially those working with young people, and at the same time within services there are also significant changes in technology use. The participants describe having to [*get their heads around*]

patient record systems, outcome measures etc. in one orientation (management facing); and texting, social media use etc. in the other orientation (client facing). This is represented in Figure 10.

Figure 10: The practitioner's 'double challenge'



P = Practitioner; C = Client; M = Manager (management); T = Technology

The pressures, risks and imperatives in each orientation are different. The parent metaphor is used widely in the data and suggests that practitioners can be seen as the 'parent' in one orientation and the 'child' in the other. For example, they are expected to manage the relationship boundary with clients autonomously when on-call but dictated to in the use of outcome measures and the collection of data. It may be said that the parent's desire to control the child's internet access is mirrored in the manager's audit of the practitioner-client relationship and both feel to be driven by a sense of risk or fear of harm being caused. It may also be seen that managers and leaders are placed in a similar double-challenge in having to provide parental containment and the setting of appropriate boundaries for staff, whilst being treated as 'naughty children' by the regulators if they are not able to comply with centrally driven quality and finance targets, governance frameworks etc. One potential danger in the current roll-out of technology proposed in the Five Year Forward View (NHS England, 2014) is that central bodies such as the National Information Board (NIB) take on a similar symbolic role of authoritarian parent and that this pushes NHS managers into an unhelpfully dependent and 'childlike' position. There are indications that this is what may have happened in the failure of the earlier National Programme for Information Technology (NPfIT). A psychoanalytically informed approach to organization consultancy may help to alert leaders to this danger. None of the factors described here would indicate a

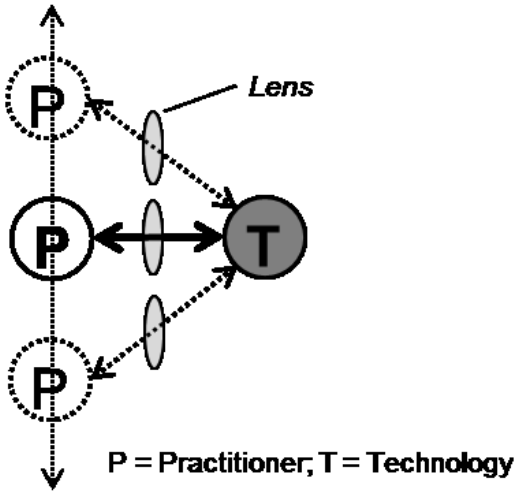
helpful or healthy environment in which to manage complex adaptive change such as the implementation of major IT systems. There is therefore a role for the consultant to bring these factors to the surface so that they can be recognised, worked with and where necessary challenged.

5.5.5 Practitioners demonstrate a range of responses to technology and hold different positions in relation to the possibility of change

The preceding discussion perhaps paints something of a pessimistic picture of the potential for successful technology implementation and use in the human services in the way envisaged by NHS England (2014), Wachter (2016) and others. However, it has also identified some areas where organization consultants drawing on a systems-psychodynamic approach might contribute to successful innovation that achieves the promises of technology. This final finding from the data also gives hope that those working in, and managing, these services are able to respond in different ways to change if they are supported in viewing the work of organizing services, and using technology as part of that work, as an ongoing and developmental process, rather than as a fixed state of being in which positions are ossified.

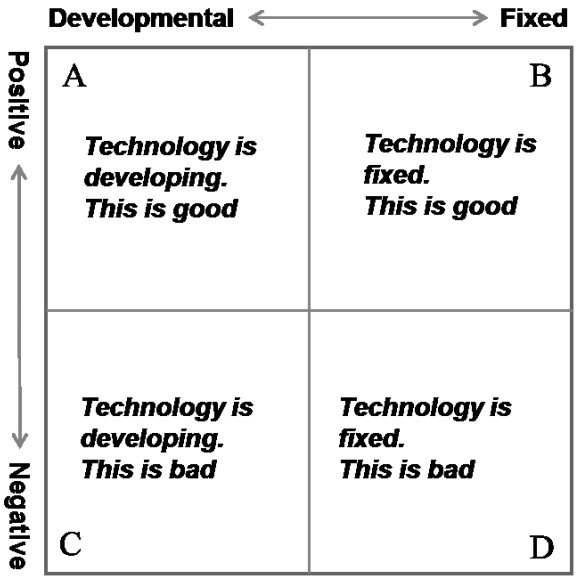
The two continuums presented in Chapter 4 under Theme A - range of positive and negative responses (Table 6) and range of developmental and non-developmental responses (Table 7) – demonstrate that the practitioner is not homogenous. They have different views and perspectives but also shift as individuals. This means there is the potential for the leader or consultant to facilitate change to the more helpful positions on the continuums. These positions are represented by the dotted-circles in Figure 11.

Figure 11: The possibility of change in relation to technology



Responses to 'technology at work' are informed by the 'lens' through which practitioners view it. Their views are fluid which suggests the lens can be changed. This research has emphasised the importance of the visual mode for both researcher and consultant and 'changing the lens' may provide a useful metaphor when working with technological change. Again, the SPM may be a pertinent method for achieving this. It can be seen in Figure 12 that the interrelation of the two axes from the continuums produces four positions in which staff may be located. The aim would be to move people towards position A in the sense of helping them see organizational processes as fluid and developmental, with both positive and negative aspects that can be worked with.

Figure 12: Responses to technological change



More widely, all those concerned with service improvement and the utilisation of technology need to view change as something that is always occurring, rather than being a singular event that is 'done' to people or organizations on specific occasions. If we are able to focus on organizing as a continual state of becoming, rather than a fixed state of being, then those moments where human-technology interaction mediates, impacts upon, affects, alters, transforms or shifts those processes in one direction or another may become more apparent. This may then provide the opportunities for leaders and consultants to observe, interpret and act upon those interactions and the mediations they generate. It can be argued that this finding provides a critique of Lewin's (1947a) change model of unfreeze-change-freeze in that the reality of organizations are never frozen if they are perpetually becoming. The evidence from this research is that what may be frozen is the *representation* of organizational reality in models, ideas, concepts and abstractions that have become reified. This indicates that an essential task for consultants may be to unfreeze the *picture* of the organization in models and in people's minds, in order to see reality flowing beneath it. A rigid organization-in-the-mind may be an indication of reification in the minds of human actors, rather than being an accurate representation of concrete reality.

5.5.6 Summary of Section

The majority of the data and findings from this study relate to the exploration of technology as a mediator of organizational processes and to bringing further understanding to this. Whilst it is possible to draw conclusions from this about how consultants might work with services in future, and this is attempted in Chapter 6, the actual findings from the study that relate directly to consultancy practice are limited. Those findings that have been discussed in this section demonstrate that technology can be engaged with creatively if the context allows *and* that practitioners can be supported to do so. This indicates a role for consultants, and leaders, in creating these conditions. In particular the findings suggest a need for active containment of anxiety to reduce the unconscious projection of those anxieties into technologies and thereby promote a capacity for abstract thought. This would help to sustain the ability to 'not know' in the face of uncertainty, and a pressure towards certainty and a premature knowing.

This is linked to literature on the concept of negative capability. In turn this would foster a more boundaried and thoughtful relationship with technology. The discussion also provides a clarification of Lewin's change model, in that we should not equate reified and fixed representations with reality itself, which is continuing movement.

5.6 Summary of Chapter

This chapter aimed to make sense of the data and findings presented in Chapter 4. The discussion was structured into four sections linked to the research themes and findings, and responded to different aspects of the research topic.

Section 5.2 discussed data that demonstrate that human services are constituted as a network of human and technological actors from which neither can be entirely disentangled, but in which the recognition of their differing characteristics, capacities and needs remains important. The entanglement is both physical and emotional which may create a human dependency on the network including technology being used in defences against anxiety. However, technology cannot do anything with anxiety other than distribute it so fails to provide active containment for the practitioner and their emotions, which are significant in these services. As the equilibrium of services shifts towards technology the capacity of the human services to work with and process emotion is likely to be diminished.

Section 5.3 argued that technology is a powerful actor which affords certain ways of working and organizing, and constrains others. It has agency to transform services and materially translates certain discourses into practice. This may disrupt the primary task of services and individuals from, for example caring, towards generating data. Professional staff may be positioned as units of data production and disciplined to work as such. Changes to services are seen to be led by technology rather than by clinical or practice considerations and technology may create a misalignment between models of services and the reality of their delivery in practice.

In section 5.4 technology was seen to encourage the abstraction and reduction of lived experience into simplified models or representations of the world. Data entered into a patient record system cannot represent the totality of experience. Driven by both anxiety and dominant discourses that value surface over depth, these abstractions may be mistaken for reality and reified as being concrete experience itself. This can generate a distortion of the organization-in-the-mind which is then acted upon as if the model were real. This impacts directly on the concrete, lived experience of those working in and using the human services.

Finally, section 5.5 discussed those aspects of the findings that were considered to impact directly on how consultants might work with individual and systemic factors in order to realise the promises of technology in the human services. This emphasised the provision of containment and the development of negative capability as a balance to the positive capabilities of technology. This could serve a process of de-reification in which the technology-generated representation of the service was recognised as a useful abstraction, but not mistaken for the reality of the service itself.

Chapter 6. Conclusions

> I waited for something, and something died.
> So I waited for nothing, and nothing arrived.
> (Villagers, 2013)

6.1 Introduction

This chapter will conclude the thesis by setting out answers to the research question followed by conceptual developments and implications for practice arising from these conclusions. Finally, there is a reflection on the approach to the research design and methodology and the impact on the researcher of the process.

6.2 Answering the Question

The central question of this study is:

> **In what ways does technology act as a mediator of organizational processes in the human services, and what are the implications for consultancy practice?**

In answering the question the starting point is to state that there is clear evidence to show that technology *does* act as a mediator of organizational processes in the human services. It is active in transforming services in multiple ways. The data indicate it may be doing so as follows.:

1. Within the primary finding that '*technology and people are entangled both physically and emotionally in the organization of human services'*, it can be said that technology:

- 1.1. Has a physical presence and mediates process at both the material and conceptual levels; on the ground and in the mind.
- 1.2. Has agency to transform services and materially translates certain discourses into practice.
- 1.3. Promotes dependency when significant functions are handed over to it which also increases its agency.

1.4. Mediates relationships through a veneer which may distort communications and also provide a defence against anxiety.
1.5. Facilitates the projection of anxiety into staff and is used by them as a means of evacuating that anxiety.
1.6. Is used by people as a substitute for human forms of containment but does not work effectively to modify anxiety.
1.7. Provides leaders with an impression of managed systems but hides the complexity beneath.

The first conclusion is that technology reduces the capacity for the processing and containment of emotions which leaves staff with an increased burden of anxiety and fewer ways to modify it. This may make them less available to provide compassionate, empathic care for clients.

2. Within the primary finding that '*technology mediates powerful forces which act on the organization of human services'*, it can be said that technology:
2.1. Affords certain ways of working and organizing, and constrains others.
2.2. Alters processes to match the model of organizing on which it operates most effectively, which may not be requisite to the primary task of services.
2.3. Facilitates scrutiny and an intrusion into the patient/client relationship by management.
2.4. Transports work and forces across system boundaries and outside of formal organizational structures.
2.5. Shifts workload onto individual practitioners that was previously held at the institutional level.
2.6. Changes working practices, team relationship and the physical infrastructure of services.
2.7. Facilitates different forms of communication within an inverse correlation between efficiency and relatedness.
2.8. Produces artefacts, such as data or images, that may be stripped of emotional content which decreases the extent to which this aspect of the service, and the capacity to work with it, is considered important.

2.9. Distorts organizational processes towards an anti-task of data production and away from the primary task (such as caring, treating, educating, rehabilitating etc. depending on the type of service).
2.10. Disciplines staff as units of data production which may contribute to process of deskilling and de-professionalization.

The second conclusion is that technology mediates processes to make them fit the models of measurement and efficiency by which technologies operate. This risks alienating staff from their work and impairs the ability of human services to achieve their primary roles within society.

3. Within the primary finding that '*technology affords a process that transforms the reality of human services organizations* ', it can be said that technology:
3.1. Affords the abstraction of lived experience and the flattening of something three-dimensional and flowing into something two-dimensional and fixed.
3.2. Changes the properties of an event as it is abstracted further from the concrete, including its value and transferability.
3.3. Encourages the reduction and simplification of complex experience into entities with definable properties and rigid boundaries.
3.4. Encourages services to be viewed at higher levels of abstraction which are detached from anxiety and are felt to be more manageable.
3.5. Encourages the reification of abstractions which give an appearance of validity and truthfulness and may be mistaken for reality itself.
3.6. May inhibit the capacity to recognize the distinction between experience and its symbolic representation which may reduce the ability to make sense of that experience and in turn to provide empathic care.
3.7. Generates virtual organizations where actions take place at an *as if* level, in the realm of the model which is mistaken for the realm of action.

The third conclusion is that technology transforms the reality of services both on the ground and in the mind of the people within them to create a virtual reality. This is likely to align services to abstract models but these may not be requisite to the task of caring for vulnerable clients, or enabling staff to do so.

The implications for consultancy practice of these findings and conclusions are presented in section 6.4 below.

6.3 Conceptual Developments Arising from the Research

The exploration of human-technology relations has necessarily drawn on a wide body of literature and ways of conceptualising aspects of those relations. There is insufficient space here to reflect all of the theoretical implications of the research so one key thread that links them is highlighted. Developing, and communicating, these ideas could be thought to form the ongoing research agenda. The research adds, conceptually, to our understanding of how technology and people interact to generate organizational processes in the following ways.

A major function of technology identified within the study is to abstract from concrete experience to simplified representation – the snapshot, patient record, meeting schedule, outcome measure, care pathway, data, research output. This is an essential and helpful process that greatly enhances our capacity to capture, understand and manipulate the world around us. We cannot apprehend it or organize it in its entirety and so we increasingly turn to technology to assist us. In doing so we give significant agency to technology to act on our behalf. Once established as an agent within organizational systems it will continue to act and generate patterns of organizing that may not be obvious to the people in the system or within their power to control.

The abstracting function of technology is not a neutral action as it selects, captures and represents only certain moments in the flow of process; certain aspects of reality. The nature of this function is determined by the model of reality or discourse built into the technology and on which it operates and relates to the world. Technology is thus implicated in translating power relations into practice. The technological model of the world will be partial and may not be congruent with the complex reality and dynamics of the human services. The process of abstraction may therefore introduce distortions into the resulting representation of those services. The distorting effect may not be visible so it may be assumed the abstraction is a truthful representation of reality. If this is

acted upon then the model will drive organizational processes so that they more closely fit the representation.

The resulting processes may or may not be requisite to the functioning of the organization, the achievement of its primary task or the roles of the people working it in. This may produce a disconnect between the service and the organization-in-the-mind of the staff; their personal construct of the service, their role and their reasons for undertaking it, including unconscious motivations. Over time their organization-in-the-mind may shift to match the technology-generated model; they may see that they should be 'superhuman robotic agilely working', or they may become alienated and cease to care about the job and the clients. Both could be seen as manic defences and this may reduce their ability to employ more helpful depressive position defences such as reparation and sublimation. They may turn increasingly to paranoid-schizoid defences of splitting and projection as anxieties become more persecuting.

One aspect of the 'technologization' of services is that human capacities are less valued, less invested in, and so the structures that previously served to contain some of the anxieties are lost – supervision, team working and the organization of the work itself, such as space between clients for reflection rather than data entry. This further serves to increase the anxiety of staff, to increase paranoid-schizoid defences and basic assumption group dynamics. One aspect of this is an increasing dependency on technology, both for cognitive functions such as storing data, organizing meetings, reporting and representing activity, but also for emotional functions, as an object into which fears, anxieties and hopes can be located. Significant feelings are attached to technology (technology becomes identified with those feelings) so if it fails, either physically breaks down or emotionally does not repay the emotion invested in it, then this may induce feelings of catastrophe.

Technology is both the source of anxiety and often the only place where anxiety can be evacuated, in the absence of true containment. This may provide some relief but, because of the connectivity of technology, may also serve to distribute the anxiety throughout the system. Technology disperses anxious energy but is an ineffective container. It does not help staff to process their anxiety in the

sense of reflecting upon it, thinking about it and learning from it. It does not aid understanding of the experience (such as a difficult encounter with a client), their ability to make sense of the feelings generated by it or consider their meaning. They are experienced only as a disturbance and not a communication. That is, they are related to concretely and not symbolically. If we can only function in the concrete realm, and not the symbolic realm, then we lose our capacity to make sense of our own experience and that of others. It becomes impossible to empathise with the other and compassion is impaired.

It can be seen that what is happening in the human services is that technology is increasingly operating at higher levels of abstraction whilst the staff are pushed, by anxiety and a lack of effective containment, into increasingly concrete thinking. Because staff are less able to think symbolically, the technologically generated abstractions are treated with misplaced concreteness; they are related to as if they were reality. This leads to the following hypothesis:

> The positive capability of technology to abstract from complexity and to help us understand, and organize, human services is reduced or lost because technology simultaneously impairs those aspects of the organization that help to contain anxiety and thereby reduces human capability to relate to those abstractions symbolically; as a useful representation of aspects of reality, and not concretely, as being reality in its entirety.

The theoretical implications and applications of this hypothesis, and other outputs of the research, need further work and can inform ongoing study. The ideas can be thought to contribute particularly to the social defences against anxiety thesis, the concept of the organization-in-the-mind, and to provide a critique to approaches, such as actor-network theory, that do not sufficiently account for the role of unconscious, emotional and irrational forces. It can be seen to address Western's (2009) "key question of our times" in relation to the interaction of non-animate and psychic objects within complex networks. It similarly adds to process theory such as Hernes (2014) through an understanding of the interaction of the symbolic and concrete realms in which

both types of object may operate. It highlights technology's crucial role in mediating between those two realms. The implications of this for organizational consultation are discussed in the following section.

6.4 Practice Developments Arising from the Research

The research question included asking what the implications for consultancy practice are of technology as a mediator of organizational processes in the human services. These are likely to be multiple and the study only develops some very initial findings in this regard. There is a significant future research agenda in working these through and evaluating how they might be addressed. Preliminary conclusions about the implications for practice include:

1. The dynamics identified in this study may distort services so that the promises of technology are overshadowed by the problems, and a form of organizing evolves that is not requisite to the emotional and relational task of human services. The findings provide a challenge to leaders and consultants of how to respond in ways that maximise the promises of technology *and* the value of human relations.
2. The study provides further understanding of the failure of the services such as the NHS to appreciate how digitisation changes the nature of work and the real implications of this in practice. This confirms the role of the consultant in supporting adaptive change in complex systems amid pressure towards certainty and away from risk and innovation.
3. The study confirms Schein's (1988) view of the centrality of process to organization consultancy practice but rejects the idea that these are entirely human processes. Faced with an organizational challenge, the process consultant should work to understand which of the many heterogeneous actors in the system are implicated in the situation.
4. A key finding is to recognise that both technology and human interact in ways that may not be immediately visible. This emphasises the need for negative capability and remaining open to the dynamics of the present moment so that 'moments' of interaction can be observed in the here-and-now. The challenge is how to make these processes visible so that they can be understood and acted upon and the social photo-matrix (Sievers, 2007, 2008, 2013) has been shown to be an effective method for doing this.

5. The findings focus attention on the interaction between organizational 'levels', that is model and ground; map and territory. The system, and therefore the consultant, need to work effectively at both the abstract and concrete levels. What is required is a process of de-reification in which models are seen as helpful but not a replacement for reality. Change can therefore be led by an engagement with reality is it is, not as how it is desired.
6. A task for the consultant is to support organizations in creating abstractions, using them to think about services, and then returning from this to reality *as is*, rather than *as if*. The social photo-matrix provides a containing space where free association, thinking and creativity are encouraged and may be a way to help those involved in implementing technology in the human services to innovate without the pressure towards certainty.
7. There is a need to work with the very real impact of technological change on the capacity of professional staff and managers to work effectively in providing human services. The provision of containment and negative capability needs to be a key focus for consultation due to the identified action by technology of reducing alpha function and thus the capacity for engaging with feelings, thinking and learning from experience.
8. It is hypothesised that the capacity of systems to process emotion and support human relations will decrease as the equilibrium of services shifts towards being centred on technology and the processing of data. In these circumstances, if and where the need for containment and alpha function are recognised, these may be outsourced to consultants. The systems-psychodynamics orientated consultant should work to re-embed these capabilities within systems.
9. How people respond to new technology is driven by a complex interaction of conscious and unconscious factors. Technology may be taken up and used in ways that are as much about managing anxiety as they are about service development. To assume otherwise, and to plan technological change without considering human factors, would appear to be a return to technological determinism and scientific management.
10. Under such conditions it is perhaps inevitable that staff will become alienated from the task of providing compassionate care as seen in the

scandals of Mid-Staffordshire Hospital, Winterbourne View, Baby Peter, and the Liverpool Care Pathway amongst others.

11. The research gives system-psychodynamics a legitimate voice in engaging critically with technological developments by helping to understand the 'black boxes' of both technology and human in ways that other approaches do not. As such the study addresses the challenge identified by Krantz (2015) of adapting the concepts of systems-psychodynamics to the new conditions and dynamics of the information age.

6.5 Critique of Research Methodology and Method

At the end of a lengthy research process such as this it is important to reflect on whether the research design and method were adequate, or if other approaches might have produced better results. One way to think about this is to consider what the outcomes might have looked like had a different method been employed, and to reflect on whether, given the method that was chosen, the outcomes are 'good enough'.

As this is a practice focused thesis one obvious alternative approach would have been to undertake and evaluate a piece of consultancy work in which technology featured, perhaps using an action research methodology (Eden and Huxham, 2006; McNiff and Whitehead, 2011). This would have had precedent in the early studies within the Tavistock which used this approach (Neumann, 2005). This would have the potential to be closer to the lived experience of both the consultant and the consultee and produce a more practical set of findings and recommendations for practice. Findings of this type are limited in the current study by the choice to undertake a more conceptual approach to understanding 'technology at work'. The counter argument would be that, without this more fundamental understanding of the forces and factors at work, the researcher-consultant would not have an adequate starting point. There is also the issue of legitimacy, both felt and actual, in undertaking such a piece of work. One of the drivers for the research was a 'hunch' that technology was a factor in situations such as the Mid-Staffordshire Hospital scandal, but an equal sense that my thinking on this was insufficiently developed or supported by the existing body of practice. As a researcher-consultant I am now in a very different position and able to talk with confidence to people in the field in relation

to ‘digital leaders’ and the development of the NHS Digital Academy (Hoeksma, 2017). It may be that the next study I undertake is action research into an actual organizational issue in which various hypotheses could be tested.

The methodological challenge was to see those moments or events where the interaction of human and technology ‘does something’, has an effect or causes a change to happen. This led to the choice of a method in which participants generate a visual artefact with which they interact; and the research data are the product of that interaction. There is a sense from the findings that this, to some extent, reflected the lived experience of interaction with technology ‘on the ground’ but in a way that was more readily captured for the purposes of study. This may also indicate the value of the method for similar work in consultations. It is however only a partial reflection of actual interaction with technology in practice. It suffers from the need to abstract from the concrete experience in order to have something that is thinkable. The key thing is to acknowledge this necessarily reductive process and that the product of the ‘research technology’ has similar limitations to the products of technologies described in the study.

In this sense there is a clear mirroring of process and content within the study in that the research method is a technology that abstracts from a selected moment in the continuing flow of ‘technology at work’. Therefore all of the concerns raised about mistaking this abstraction for reality apply here. What is perhaps different is the context of using the research technology in a containing space where free association, thinking and creativity are encouraged. Again, this suggests that using the social photo-matrix in practice may be a way to help those involved in implementing technology in the human services to step back from ‘the universe’, and to play with important aspects of the process without the pressure towards certainty. Of course, an important finding from this study is that the learning from this abstraction must then be used in a way that recognizes its partiality; something that may require the ongoing containment provided by either a consultant or organizational leader with an awareness of the dangers of misplaced concreteness.

The same caveat of partiality applies to the sample of participants in the study, and also to interpretation of the data by the researcher. Only some experiences of 'technology at work' were available in the SPMs and only some of these were described and documented. Whilst the sample was limited to professionals working with children, young people and families they were doing so in a range of job roles and settings so it does feel legitimate to say that the findings have relevance to human services more widely. My experience of discussing the research with people from a wide range of backgrounds is that the findings from this study have wider application and do represent something of the human-technology experience in different organizations. I do though think that other groups of people may have had more positive overall views about technology and that this would have helped with the stated aim of holding on to the promises of technology. It would also have been helpful to have more managers in the group to better represent their perspective. A fair criticism of the study would be its over-identification with the plight of the practitioner, and giving insufficient weight to the value of technology for managers seeking to address the triple aim of better health, better healthcare, and lower cost; and the anxiety associated with what may, in fact, be an impossible task.

A further factor in the choice of research design was a desire to find my own way into the process and role of researcher. I did not want to follow a pre-designed method or set of rules and instead wanted to see what might work in the particular context of a professional doctorate linked to organization consultancy. This is not to say that I ignored previous scholarship; I explored a wide range of methodologies and techniques and the final design emerged from thinking about how these might or might not provide a framework for the study. Instead, my view was that this was an opportunity for creativity rather than adhering to a method developed for other purposes which would have mirrored the unthinking use of technologies in the way critiqued in this study.

Just as, it is argued, technologies in the human services are imbued with particular discourses so the research method is similarly permeated by the methodology, including the researcher's stance on the nature of reality and what can be known about it. An important influence on the research methodology was the idea of a relational ontology and the rejection of the idea

that the world is composed of individuals and objects with separately attributable properties. Engagement with the data about the experiences of the participants has made me start to question this view in the latter stages of writing the thesis. I am increasingly of the opinion that we can and should keep a degree of separation between humans and the material-technological world, even if, methodologically, it was helpful for the research to employ the idea of generalized symmetry. That is, to *not* make an a priori assumption that an organizational issue is directly attributable to either a human or technological actor seems a very healthy starting point for both researcher and consultant.

However, the idea that humans and technology exist 'only' in relation to each other perhaps goes too far and loses sight of significant differences. To accept the contingency of human-technology relations is not necessarily to accept the equivalence of the actors. In light of the findings of the research, and the experience of the researcher in undertaking it, it appears that Orlikowski's (op cit) 'constitutive entanglement' reflects a paranoid-schizoid view of the human-technology relationship in which objects cannot be held separately in mind and people are treated as part objects. It may therefore be that this view is an expression of the *problem*: that technology generates paranoid-schizoid systems. Methodologically it may be helpful to recognize the degree of entanglement in modern organizations but we should name this as being an unhealthy state of affairs; rather than simply 'as it is'. For the leader or consultant the task becomes to make this visible and to dis-entangle those aspects that properly belong to either technology or human. This would entail moving systems towards a more depressive position in which whole objects exist in-relation, but are not merged.

Thus, I have done a lot of reflecting on my insistence on a post-social research framework. This doesn't sit easily with a psychoanalytic understanding of humans and this may be a reflection of my own ambivalent relationship with psychoanalysis. Aspects of this thesis might be seen a flight from the psychoanalytic underpinnings of systems-psychodynamics; but might also be seen as a realistic assessment of the inadequacies of the approach in an increasingly networked society. Only latterly has psychoanalytic thinking really come back in to inform the study and this has helped in regaining the centrality

of the human condition in organizations, especially of course the human services. This was a process supported by my supervisors. This makes me wonder whether this might be a wider experience for doctoral students given the anxiety inherent in producing new knowledge. Equally though the tension I have described between psychoanalysis and post-social theory, and the researcher's relationship with both the content and process of researching, may be exactly the kind of force that is required to generate the thinking needed for knowledge to emerge.

The term 'transformation' has been used a lot in this thesis. Completing it has been a transformative experience for me and, as Bion (1962b) suggests, learning from such experiences is likely to be painful. The process has transformed me, my thinking, and my capacities as a researcher-consultant. One view of doctoral study is that the *process* of undertaking the research and completing a thesis, to a sufficiently high standard, is the primary function and that the *output*, in terms of new knowledge, is somewhat secondary. Certainly the conclusions from this study are a modest contribution to thinking and practice in this field. The aim would be to make these available through publication and dissemination and to influence a range of actors in the realms of human services, digital leadership and organization consultancy. I am hopeful that a training and consultation product can be developed as well, and feel equipped to evaluate its impact. These are not things that I would have felt able to do prior to the professional doctorate. The product is then perhaps me as a person as much as any material outputs. It is pertinent that this has to be evidenced in concrete form as a written text. The transformation and the thesis are related; but not the same.

6.6 Concluding Summary

At the start of this thesis I described a conversation with a Chief Information Officer and wondered what I could offer as an organizational consultant in the field of IT development and implementation. This research has been a process of discovering what that might be and I now feel significantly more equipped. I recently wrote to the Chief Executive of the NHS Digital Academy[44] to offer her

[44] https://www.england.nhs.uk/digitaltechnology/info-revolution/nhs-digital-academy/

my thoughts, based on this research, on the challenges of developing digital leaders. Part of the text of this is provided below as a concluding summary.

“My thesis is that technology of all kinds, including health information technologies, but also mobile phones, laptops and even electronic calendars, is a powerful actor/agent in organizations. Their introduction inevitably leads to a transformation of organizational processes and therefore the nature of the service itself. This may be what is intended but if it isn’t done thoughtfully, with the primary task of the service in mind, then the technology may end up leading the process rather it being clinically/practice led. The result may be a service that ‘works’ for the technology but is not requisite for delivering the service ‘on the ground’. This is particularly so in the human services (health, social care etc) where anxiety associated with the task of providing care to service users who are ill, dying or disturbed, plus external anxieties such as targets and governance regimes, can drive people to relate in a very rigid or concrete way to models as if there were reality itself.

What is needed in these circumstances is leadership that can cope with inevitable uncertainty and disruption and bear the ‘not knowing’ without jumping precipitately into actions that are the result of anxiety and the need for immediate ‘solutions’. A central task for leaders, and consultants, is to create an environment where staff are able to engage creatively, with curiosity and flexibility, with technology so that innovation can occur that holds in mind the needs of both the technical system and the social/human system. Within my thesis I review the Wachter Report and support the aim for a new approach that emphasises the importance of people, the nature of the work, and of adaptive change to meet the specific needs of a highly complex system. I question though whether the hoped for conditions, that are identified as essential for adaptive change and therefore successful HIT implementation, are present in many parts of the NHS. Specifically, there continues to be a lack of appreciation for the complexity of change in large systems dealing with human needs, and the emotional impact of that engagement. My argument is that this may be one reason why the promises of technology in the NHS and elsewhere have not been realised.”

Reference List

A

Ackoff, R. (1974). 'Systems, messes and interactive planning: portions of chapters 1 and 2 of redesigning the future', in Trist, E. & Murray, H. (eds.) *The social engagement social science, Volume 3: The socio-ecological perspective.* London: Free Association Books. 1997.

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (Fifth ed.)*. Arlington, VA: American Psychiatric Publishing.

Andrade, A.D. (2010). 'From intermediary to mediator and vice versa: on agency and intentionality of a mundane sociotechnical system', *International Journal of Actor-Network Theory and Technological Innovation*, 2(4), pp. 21-29.

Armstrong, D. (2005). *Organization-in-the-mind: psychoanalysis, group relations and organizational consultancy*, (French, R. ed.), London: Karnac Books Ltd.

Armstrong, D. and Rustin, M. (eds.) (2015). *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books

Arnaud, G. (2012) 'The contribution of psychoanalysis to organization studies and management: an overview', *Organization Studies*, 33 (9), pp. 1121-1135.

Arthur, W.B. (2009). *The Nature of Technology: What It Is and How It Evolves*, London: Penguin.

Ash, J. S., Berg, M., & Coiera, E. (2004). 'Some unintended consequences of information technology in health care: the nature of patient care information system-related errors', *Journal of the American Medical Informatics Association, 11*(2), pp.104–112.

Atkinson, P. and Silverman, D. (1997). 'Kundera's immortality: the interview society and the invention of the self', *Qualitative Inquiry*, 3, pp.304-325.

B

Bain, A. (1998). 'Social defences against organizational learning', *Human Relations*, 51(3), pp. 413 – 429.

Barad, K. (2003). 'Posthumanist performativity: toward an understanding of how matter comes to matter', *Signs*, 28 (3). pp.801–831.

Barley, S.R. (1998). 'What can we learn from the history of technology?', *Journal of Engineering Technology Management*, 15, pp. 237–255.

Berg, M. (1997). 'Problems and promises of the protocol', *Social Science and Medicine*, 44 (8), pp.1081-1088.

Berg, M. (2004). 'Health care work and patient care information systems', in Berg, M. (ed.) *Health Information Management: Integrating information technology in health care work,* Routledge health management series, London: Routledge. pp. 43-61.

Berg, M. and Winthereik, B.R. (2004). 'Waiting for Godot: episodes from the history of patient records', in, Berg, M. (ed.), *Health Information Management: Integrating information technology in health care work,* Routledge health management series, London: Routledge. pp. 10-42.

Beveridge, J. (2015). 'A tangled web: Internet pornography, sexual addiction, and the erosion of attachment', in Cundy, L. (ed.) *Love in the Age of the Internet: Attachment in the Digital Era*, London: Karnac Books Ltd. pp.31-52.

Bick, E. (1968). 'The experience of the skin in early object relations', *International Journal of Psychoanalysis*, 49, pp. 484-86.

Bijker, W.E. (1995). *Of bicycles, Bakelites, and bulbs: toward a theory of sociotechnical change*, Cambridge, Massachusetts: MIT Press.
Bijker, W. E., Hughes, T.P. and Pinch, T.J. (eds.) (1987) *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology.* Cambridge, MA: MIT Press.

Bion, W.R. (1961). *Experiences in groups and other papers*. London: Routledge.

Bion, W.R. (1962a). 'A theory of thinking', in Bion, W.R. *Second Thoughts. Selected papers on psycho-analysis*. Reprinted, London: Karnac Books, 1984 pp: 110-119. Orig. pubd. *International Journal of Psychoanalysis*, 1962, 43, pp. 306-310.

Bion, W.R. (1962b) *Learning from experience*. Reprinted, London: Karnac Books, 1984.

Bion, W.R. (1967) 'Notes on memory and desire'. *Psychoanalytic Forum*, 2: 271-280.

Bjørn-Andersen, N. and Raymond, B. (2014), 'The impact of IT over five decades: towards the ambient organization', *Applied Ergonomics,* 45, pp.188-197.

Blow, A.J., Sprenkle, D.H. and Davis S.D (2007). 'Is who delivers the treatment more important than the treatment itself? The role of the therapist in common factors', *Journal of Marital and Family Therapy*, 33(3), pp.298–317

Bodenheimer, T. and Sinsky, C. (2014). 'From triple to quadruple aim: care of the patient requires care of the provider', *The Annals of Family Medicine*, 12(6), pp. 573-6.

Bollas, C. (1987). *The Shadow of the Object: Psychoanalysis of the Unthought Known*, London: Free Association Books.

Boxer, P. (1999). 'The dilemmas of ignorance', in Oakley, C. (ed.) *What is a Group? A fresh look at theory in practice*, London: Rebus Press. pp. 147-167.

Boxer, P. (2013). 'Leading organisations without boundaries: quantum organisation and the work of making meaning', paper presented at the *13th Annual Meeting of the International Society for the Psychoanalytic Study of Organisations (ISPSO)* at Oxford UK, July 2013. Available at: http://www.asymmetricleadership.com/2013/01/ (Accessed: 03/03/2014).

Boxer, P. (2015). ‘Defences against innovation: the conservation of vagueness’, in Armstrong, D. and Rustin, M. (eds.) *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books, pp.70-87.

Braithwaite, J., Wears, R.L. and Hollnagel, E. (eds.) (2016). *Resilient Health Care, Volume 3: Reconciling Work-as-Imagined and Work-as-Done*, Boca Raton, FL: CRC Press. Available at: http://www.crcnetbase.com/isbn/9781498780575

Bramming, P., Hansen, B.G., Bojesen, A. and Olesen, K.G. (2012). ‘(Im)perfect pictures: snaplogs in performativity research’, Q*ualitative Research in Organizations and Management: An International Journal*, 7(1), pp.54 - 71

Braverman, H. (1974). *Labor and Monopoly Capital*. New York: Free Press

Briggs, S., Froggett, L. and Smith, M. (2013). Editorial. *Journal of Social Work Practice: Psychotherapeutic Approaches to Health, Welfare and the Community*. 27(1), pp.1-4.

Britton, R. (1989). 'The missing link: parental sexuality in the Oedipus Complex', in Steiner, J. (ed.) *The Oedipus Complex today: clinical implications*, London: Karnac Books Ltd.

Britton, R. (1998). *Belief and imagination*, London: Routledge.

Broadhurst, K., Wastell, D., White, S., Hall, C., Peckover, S., Thompson, K., Pithouse, A. and Davey, D. (2009). ‘Performing ‘initial assessment’: identifying the latent conditions for error at the front-door of local authority children’s services’, *British Journal of Social Work,* 40, pp. 352-370.

Broussine, M., (ed.) (2008) *Creative Methods in Organizational Research*. London: Sage Publications.

Bruce, K. and Nyland, C. (2011). ‘Elton Mayo and the deification of human relations’, *Organization Studies*, 32(3), pp. 383 – 405.

Bryman, A. (2012). *Social research methods*, 4th edn., Oxford, Oxford University Press.

C

Callon, M. (1987). ‘Society in the making: the study of technology as a tool for sociological analysis’, in Hughes, T.P., Bijker, W.E., and Pinch, T.J. (eds.) *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, pp. 86–103. Cambridge, MA: The MIT Press.

Caparrotta, L. and Lemma, A. (2013). ‘Introduction’, in Lemma, A. and Caparrotta, L. (eds.) *Psychoanalysis in the Technoculture Era* (New Library of Psychoanalysis 'Beyond the Couch' Series). London: Routledge. pp. 1-22.

Cardona, F. (1999). ‘The team as a sponge: how the nature of the task affects the behaviour and mental life of a team’, in French, R. and Vince, R. (eds.) *Group relations, management and organization.* Oxford: Oxford University Press. 239-250.

Carr, N. (2014). *The Glass Cage*, London: WW Norton & Co.

Catty, J. (2004), 'The vehicle of success': theoretical and empirical perspectives on the therapeutic alliance in psychotherapy and psychiatry', *Psychology and Psychotherapy: Theory, Research and Practice*, 77, pp. 255–272.

Chapman, J. (2002). *System failure: Why governments must learn to think differently*. London: Demos.

Chia, R. (1998). 'From complexity science to complex thinking: organization as simple location', *Organization*, 5(3), pp. 341-369

Clarke, S. (2006). 'Theory and practice: psychoanalytic sociology as psycho-social studies', *Sociology*, 40 (6), pp.1153-1169.

Clarke, S. and Hoggett, P. eds. (2009). *Researching Beneath the surface: psycho-social research methods in practice (The exploring psycho-social studies series)*, London, Karnac Books Ltd.

Clegg, S.R., Pina e Cunha, M., Rego, R. and Dias, J. (2013). 'Mundane objects and the banality of evil: the sociomateriality of a death camp', *Journal of Management Inquiry*, 22 (3), pp. 325-340

Cooke, G. and Muir, R. (2012). *The relational state: how recognising the importance of human relationships could revolutionise the role of the state*. London: Institute for Public Policy Research.

Cooper, A. (2010). 'Legend, myth and idea: On the fate of a great paper', *British Journal of Psychotherapy*, 26(2), pp. 219–27.

Corbyn, Z. (2015). 'The Glass Cage: why our brains are at risk of automation as well as our jobs', *The Observer*, 11 January [Online]. Available at: https://www.theguardian.com/books/2015/jan/11/nicholas-carr-the-glass-cage-review-automation-makes-us-stupid (Accessed: 20/01/2015).

Cressman, D. (2009) *A brief overview of actor-network theory: punctualization, heterogeneous engineering & translation*, Centre for Policy Research on Science & Technology, Simon Fraser University.

Creswell, J.W. (2013). *Qualitative inquiry and research design: choosing among five approaches*, 3rd edn, London: Sage Publications.

Cummins, A. (2001). 'The road to hell is paved with good intentions: Quality assurance as a social defence against anxiety', *Organisational and Social Dynamics*, 2(1), pp.99–119.

Cundy, L. (ed.) (2015). *Love in the Age of the Internet: Attachment in the Digital Era,* London: Karnac Books Ltd.

Czarniawska, B. (2008). *A theory of organizing*, Cheltenham: Edward Elgar.

D

Davison, J., McLean, C and Warren, S. (2012). 'Exploring the visual in organizations and management', *Qualitative Research in Organizations and Management: An International Journal*, 7(1), pp.5 - 15

De Board, R. (1978). *The psychoanalysis of organizations: a psychoanalytic approach to behaviour in groups and organizations,* Hove: Brunner-Routledge.

Department of Health. (2004). National service framework: children, young people and maternity services, London: Department of Health, Available at: https://www.gov.uk/government/publications/national-service-framework-children-young-people-and-maternity-services (Accessed: 10/08/2013).

Department of Health. (2013). *Review of Liverpool Care Pathway for dying patients*. London: Department of Health. Available at: https://www.gov.uk/government/publications/review-of-liverpool-care-pathway-for-dying-patients (Accessed: 10/08/2013)

Desanctis, G. and Poole, M. S. (1994). 'capturing the complexity in advanced technology use: adaptive structuration theory', *Organization Science.* 5(2), pp.121–147.

Dewett, T. and Jones, G.R. (2001). 'The role of information technology in the organization: a review, model, and assessment', *Journal of Management,* 27: pp.313-346.

Drucker, P.F. (1952). 'The Employee Society', *American Journal of Sociology,* 58 (4), pp. 358-363.

E

Eason K.D. (2008b) 'The National Health Service National Programme for Information Technology (NPfIT): a socio-technical systems perspective' in Currie, W. and Finnegan, D. (eds.) *'Integrating healthcare with information and communications technology*', Oxford: Radcliffe. pp. 183-204.

Eason, K. D. (2008a). 'Sociotechnical systems theory in the 21st Century: another half-filled glass'. in Graves, D. (ed.) *Sense in social science: a collection of essays in honour of Dr. Lisl Klein,* Desmond Graves: Broughton, pp. 123-134.

Eason, K. D. (2014) 'Afterword: The past, present and future of sociotechnical systems theory', *Applied Ergonomics,* 45, pp. 213-220

Eden, C. and Huxham, C. (2006). 'Researching organizations using action research', in Clegg, S.R., Hardy, C., Lawrence, T.B. and Nord, W.R. (eds.), *The SAGE Handbook of Organization Studies,* London: Sage Publications. pp. 388 - 408

Eisenhardt, K. M., and Graebner, M. (2007). 'Theory building from cases: opportunities and challenges', *Academy of Management Journal*, 50, pp.25-32.

Emery, F. (1993). 'Characteristics of socio-technical systems', in Trist, E. and Murray, H. (eds.). *The Social Engagement of Social Science: A Tavistock Anthology. Vol. 2: The Socio-Technical Perspective.* Philadelphia: University of Pennsylvania Press. [Online]. Available at: http://www.moderntimesworkplace.com/archives/ericsess/sessvol2/STS_Emery.pdf (Accessed 10/07/2013).

Employers Network for Equality and Inclusion (2013). *Agile Working: A Guide for Employers*, Employers Network for Equality and Inclusion, Retrieved from: http://www.nhsemployers.org/news/2013/09/agile-working-guide-published. (Accessed: 12/12/2016).

F

Fanfarlo. (2012). ‘Deconstruction’, *Rooms Filled with Light* [CD, Album]. New York: Atlantic Records.

Faulkner, P. and Runde, J. 2012. ‘On sociomateriality’, in Leonardi, P.M., Nardi, B, A. and Kallinikos, J. (eds.) *Materiality and Organizing: Social Interaction in a Technological World*. Oxford: Oxford University Press, pp. 49-66.

Faulkner, P., Lawson, C. and Runde, J. (2010). ‘Theorising technology’, *Cambridge Journal of Economics.* 34, pp. 1-16.

Fenichel, O. (1946). *The Psychoanalytic Theory of Neurosis*, New York: Norton.

Feyerabend, P.K. (1970). ‘Against method: Outline of an anarchistic theory of knowledge’, in Radner, M. and Winokur, S. (eds.). *Analysis of Theories and Methods of Physics and Psychology, Minnesota Studies in the Philosophy of Science, Vol. 4*, Minneapolis: University of Minnesota Press, pp. 17-130.

Fonagy, P. (2013). ‘Foreword’, in Lemma, A. and Caparrotta, L. (eds.) *Psychoanalysis in the Technoculture Era* (New Library of Psychoanalysis 'Beyond the Couch' Series). Routledge. pp. xv-xxi.

Fotaki, M. (2010). ‘Why do public policies fail so often? Exploring health policy-making as an imaginary and symbolic construction’, *Organization*, 17(6), pp. 703-720.

Fotaki, M., Long, S. and Schwartz, H.S. (2012) ‘What can psychoanalysis offer organization studies today? Taking stock of current developments and thinking about future directions’, *Organization Studies*, 33 (9), pp. 1105-1120.

Fotaki, M., Metcalfe, B. and Harding, N. (2014) ‘Writing materiality into organization theory’, *Human Relations*, 67 (10), P.1239-1263

Foucault, M. (1972). *Archaeology of knowledge,* New York: Pantheon.

Foucault, M. (1975). *Discipline and Punish: the Birth of the Prison*, New York: Random House.

Foucault, M. (1976). *The birth of the clinic*, London: Tavistock Publications Ltd.

Francis, R. (2013) *Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry*. February 2013. London: The Stationery Office

Friedberg, M.W., Chen, P.G., Van Busum, K.R, et al. (2013). *Factors affecting physician professional satisfaction and their implications for patient care, health systems, and health policy*. Santa Monica, CA: RAND Corporation.

French, R. (2001). ‘Negative capability: Managing the confusing uncertainties of change’, *Journal of Organizational Change Management*; 14(5), pp. 480-492

French, R. and Simpson, P. (1999). “‘Our best work happens when we don’t know what we’re doing’. Discuss.” *Socio-Analysis*, 1(2), pp. 216-230.

Freud, S. (1915). ‘The Unconscious’, *The Standard Edition of the Complete Psychological Works of Sigmund Freud,* Volume XIV (1914-1916): On the History of the Psycho-Analytic Movement, Papers on Metapsychology and Other Works, London: Vintage, pp. 159-215.

Frey, C.B. and Osborne, M. (2013). *The future of employment: how susceptible are jobs to computerisation?* Working Paper, Oxford: Oxford Martin Programme on Technology and Employment.

G

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration.* Cambridge: Polity Press.

Gould, L., Stapley, L., & Stein, M. (2001). *The systems psychodynamics of organizations: Integrating the Group Relations Approach, Psychoanalytic and Opens Systems Perspectives*. London: Karnac Books.

Green, J. and Thorogood, N. (2009). *Qualitative methods for health research, (Introducing qualitative methods series)*, London: Sage Publications.

Greenfield, S. (2014). *Mind Change: How digital technologies are leaving their mark on our brains*, London: Rider.

Gutman, D. (1989). 'The decline of traditional defences against anxiety', in Gabelnick, F. E. A. (ed.) *Contributions to social and political science*. Oxford, Keble College. Washington DC, A K Rice Institute.

H

Halton, W. (2015). 'Obsessional-punitive defences in care systems: Menzies Lyth revisited', in Armstrong, D. and Rustin, M. (eds.) *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books, pp. 27-38.

Hanford, T. (2015). 'Finding words: the use of email in psychotherapy with a disorganised and dissociating client', in Cundy, L. (ed.) *Love in the Age of the Internet: Attachment in the Digital Era*, London: Karnac Books Ltd. pp.153-168.

Harding, N., Lee, H., Ford, J. and Learmonth, M., (2011) 'Leadership and charisma: A desire that cannot speak its name?', *Human Relations*, 64 (7), pp.927 -950.

Harrison, B. (2002). 'Seeing health and illness worlds – using visual methodologies in a sociology of health and illness: a methodological review', *Sociology of Health & Illness* 24, (6), pp. 856–872.

Hasenfeld, Y. (ed.) (2010). *Human Services as Complex Organizations*, 2nd edn. London: Sage Publications.

Hassard, J., Holliday, R. and Willmott, H. eds. (2000). *Body and organization*, London: Sage Publications.

Heifetz, R. and Laurie, D.L. (2001). 'The work of leadership', *Harvard Business Review*, December 2001.

Hernes, T. (2008). *Understanding organization as process: theory for a tangled world* (Routledge studies in management, organisation and society), Abingdon: Routledge.

Hernes, T. (2014). *A Process Theory of Organization*, Oxford: Oxford University Press.

Hinshelwood, R. (1991). *A Dictionary of Kleinian Thought*, London: Free Association Books

Hirschhorn, L. (1997). *Reworking Authority: Leading and Following in the Post-modern Organisation.* Cambridge, MA: MIT Press.

Hoeksma, J. (2017). 'Imperial and Edinburgh selected to deliver NHS Digital Academy', *Digital Health*, 1 August, [Online]. Available at: https://www.digitalhealth.net/2017/08/imperial-edinburgh-selected-deliver-nhs-digital-academy/ (Accessed: 05/08/2017).

Hoggett, P. (2006). 'Conflict, ambivalence, and the contested purpose of public organizations', *Human Relations*, 59(2), pp.175-194

Hoggett, P. (2015). 'A psycho-social perspective on social defences', in Armstrong, D. and Rustin, M. (eds.) *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books. pp.27-38.

Hollway, W. and Jefferson, T. (2013). *Doing qualitative research differently: free association, narrative and the interview method*, 2nd ed. London: Sage Publications.

Hood, C. (1991). 'A public management for all seasons', *Public Administration*, 69 (Spring), pp. 3-19.

Hopper, E. (ed.) (2012). *Trauma and organizations*, London: Karnac Books

http://tanhillinn.com/ (no date). *The Tan Hill Inn*, [Online]. (Accessed: 10/07/2016).

http://www.england.nhs.uk/mental-health/adults/iapt/ (no date). 'Adult improving access to psychological therapies programme'*, NHS England*. [Online]. (Accessed: 12/10/2016).

https://www.england.nhs.uk/mental-health/cyp/iapt/ (no date). 'Children and young people's improving access to psychological therapies programme', *NHS England*. [Online]. (Accessed: 12/10/2016).

https://www.england.nhs.uk/mental-health/cyp/transformation/ (no date). 'Local transformation plans', *NHS England*. [Online]. (Accessed: 12/10/2016).

https://www.gov.uk/government/organisations/national-information-board (no date). *National Information Board* [Online]. (Accessed: 12/10/2016).

Huber, G. P. (1990). 'A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making', *Academy of Management Review*, 15(1), pp.47–71.

Hudson, J. (2002). 'Digitising the structure of government: the UK's information age government agenda', *Policy and Politics* 30, pp.515–31.

Huffington, C., Halton, W., Armstrong, D., and Pooley, J. (eds.) (2004) *Working Below the Surface: The Emotional Life of Contemporary Organisations* (Tavistock Clinic Series). London: Karnac Books Ltd.

Humphries, C. and Smith, A.C.T. (2014). 'Talking objects: Towards a post-social research framework for exploring object narratives', *Organization*, 21 (4). pp. 477-494.

Hutton, J., Bazalgette, J. and Reed, B. (1997). ‘Organisation-in-the-Mind, in Neumann, J.E. (ed.) *Developing Organisational Consultancy*, London: Routledge.

I

Introna, L (2007) ‘*Towards a post-human intra-actional account of sociomaterial agency (and morality)*’, Paper prepared for the moral agency technical artefacts workshop. The Hague: Netherlands Institute for Advanced Study. 10-12 May 2007

J

Jackson, M.H., Poole, M.S. and Kuhn, T. (2001). ‘The social construction of technology in studies of the workplace’. (To appear in *the Handbook of New Media*, edited by Lievrouw and Livingstone. Sage Publications, 2001.) [Online]. Available at: https://www.researchgate.net/profile/Michele_Jackson2 (Accessed: 12/04/2016).

Jackson, N. and Carter, P. (1998). ‘Labour as dressage’ in McKinlay, A. and Starkey, K. (eds.), *Foucault, management and organization theory: from Panopticon to technologies of self*, London: Sage Publications. pp. 49-64.

Jaques, E. (1955). ‘Social systems as a defence against persecutory and depressive anxiety’, in Heimann, P., Klein, M. and Money-Kyrle, R.E. *New directions in psycho-analysis*. London: Tavistock Publications.

Jaques, E. (1995). ‘Why the psychoanalytical approach to understanding organizations is dysfunctional’, *Human Relations*, 48(4), pp. 343-349.

Jarzabkowski, P. and Pinch, T. (2013). ‘Sociomateriality is 'the New Black': Accomplishing repurposing, reinscripting and repairing in context’, *Management (France),* 16(5), pp. 579-592

K

Keats, J. (1817) in Gittings, J. (ed.) *John Keats Selected Letters*. Oxford University Press. 2002.

Kiss, J. (2015a). ‘The web has stolen my creativity. What I need is the time and space to think …’, *The Guardian* [Online]. Available at: https://www.theguardian.com/technology/2015/jan/09/facebook-stole-my-creativity-jemima-kiss (Accessed: 15/08/2016)

Kiss, J. (2015b). ‘We need an internet that leaves space in our heads to enjoy creative peace’, *Observer Technology Monthly*, [Online]. Available at: https://www.theguardian.com/technology/2015/feb/06/internet-industry-overwhelms-us-need-for-change-online-time-offline (Accessed: 15/08/2016).

Klein, L. (2001). ‘Luddism for the twenty-first century’, *International Journal of Human-Computer Studies*, 55, pp. 727-737.

Klein, M. (1946). ‘Notes on some schizoid mechanisms’, *International Journal of Psycho-Analysis*, 27, pp. 99-110

Knappett, C., and Malafouris L. (2008) *Material agency: towards a non-anthropocentric approach*, New York: Springer.

Krantz, J. (2010). ‘Social defences and twenty-first century organizations’, *British Journal of Psychotherapy,* 26(2), pp. 192–201.

Krantz, J. (2013). ‘Approaching twenty-first century information-based organisations’, in Vansina, L. (ed.) *Humanness in organisations: a psychodynamic contribution*. London: Karnac Books Ltd. pp. 51-70.

Krantz, J. (2015). ‘Social defences in the information age’, in Armstrong, D. and Rustin, M. (eds.) *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books. pp.59-69.

Kravets, D. (2011). ‘U.N. Report Declares Internet Access a Human Right’, *Wired Magazine*, [Online]. Available at: https://www.wired.com/2011/06/internet-a-human-right/ (Accessed: 06/05/2016).

Kuhn, T.S. (1962). *The Structure of Scientific Revolutions,* Chicago: University of Chicago Press.

L

Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, MA: Harvard University Press.

Latour, B. (1993). *The pasteurization of France,* Cambridge, MA: Harvard University Press.

Latour, B. (1994). ‘On technical mediation: philosophy, sociology, genealogy’, *Common Knowledge*, 3 (2), pp. 29-64

Latour, B. (2005) *Reassembling the social: an Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.

Law, D. and Wolpert, M. (eds.) (2014). *Guide to Using Outcomes and Feedback Tools with Children, Young People and Families, Formally known as COOP Document*, London: CORC Ltd.

Law, J. (1994). *Organizing Modernity*, Oxford: Blackwell Publishers.

Law, J. (2003). ‘*Notes on the theory of the actor network: Ordering, strategy and heterogeneity’*, Centre for Science Studies, Lancaster University, Available at: http://www.comp.lancs.ac.uk/sociology/papers/Law-Notes-on-ANT.pdf (Accessed: 06/05/2016).

Law, J. (2004). A*fter method: mess in social science research*, Abingdon and New York: Routledge.

Law, J. and Singleton, V. (2013). ‘ANT and politics: working in and on the world’, *Qualitative Sociology*, 36: pp. 485–502.

Lawlor, D. (2009). ‘Test of time: A case study in the functioning of social systems as a defence against anxiety: Rereading 50 years on’, *Clinical Child Psychology and Psychiatry,* 14(4), pp. 523–30.

Lawrence, G. (1977). ‘Management development . . . some ideals, images and realities’, in Coleman, A. D. and Geller, M. H. (eds.) *Group Relations Reader 2,* Washington DC: A. K. Rice Institute Series

Lawrence, W.G. (2005). *Introduction to social dreaming: transforming thinking*, London: Karnac Books Ltd.

Lemma, A. and Caparrotta, L. (eds.) (2013). *Psychoanalysis in the Technoculture Era* (New Library of Psychoanalysis 'Beyond the Couch' Series). London: Routledge.

Leonardi, P. M., Nardi, B. A., & Kallinikos, J. (eds.) (2012). *Materiality and Organizing: Social Interaction in a Technological World*, Oxford: Oxford University Press.

Leornardi, P.M., and Barley, S.R. (2010), 'Materiality and change: Challenges to building better theory about technology and organizing', *Information and Organization* 18, pp. 159–176.

Lewin, K. (1946). *Resolving social conflicts & Field theory in social science.* Washington, D.C.: American Psychological Association.

Lewin, K. (1947a). 'Frontiers in group dynamics I. Concept, method and reality in social science; social equilibria', *Human Relations*, 1(1), pp. 5 - 41

Lewin, K. (1947b). Frontiers in group dynamics II. Channels of group life; social planning and action research, *Human Relations*, 1(2), pp. 143 - 153

Long, S. (ed.) (2013). *Socioanalytic methods: discovering the hidden in organisations and social systems*, London: Karnac Books Ltd.

M

MacKenzie, D. and Wajcman, J. (1999). *The social shaping of technology*. Maidenhead: Open University Press.

Madonna. (1984). 'Material Girl', *Like a Virgin* [CD, Album]. New York: Warner Bros. Records

Madriz, E.I. (1998). 'Using focus groups with lower socioeconomic status Latina women', *Qualitative Inquiry*, 4 (1), pp.114-128

Mayo, E. (1933). *The human problems of an industrial civilization*. Cambridge, MA: Harvard University Press.

McGivern, G., Fischer, M., Ferlie, E., & Exworthy, M. (2009). *Statutory regulation and the future of professional practice in psychotherapy and counselling: Evidence from the field (ESRC Report),* London: King's College London.

McLoughlin, C. (2010). 'Concentric circles of containment. A psychodynamic contribution to working in pupil referral units', *Journal of Child Psychotherapy*, 36 (3). pp. 225-239.

McMillan, C.J. (1996). *The Japanese Industrial System*, 3rd edn. Berlin: De Gruyter.

McNiff, J. and Whitehead, J. (2011). *All you need to know about action research*: 2nd edn. London: Sage Publications Ltd.

Meltzer, D. et al. (1975). *Explorations in Autism: A Psycho-Analytical Study,* Strath Tay: Clunie.

Menzies Lyth, I.E.P. (1960). 'Social systems as a defence against anxiety: an empirical study of the nursing service of a general hospital', in Trist, E & Murray,

H. (1990) *The social engagement social science, Volume 1: the socio-psychological perspective.* London: Free Association Books.

Mersky, R.R. (2012). 'Contemporary methodologies to surface and act on unconscious dynamics in organizations: an exploration of design, facilitation capacities, consultant paradigm and ultimate value', *Organisational and Social Dynamics* 12(1), pp.19-43.

Meyer R. E., Höllerer, M.A., Jancsary, D. & van Leeuwen, T. (2013) 'The visual dimension in organizing, organization, and organization research: core ideas, current developments, and promising avenues', *The Academy of Management Annals*, 7 (1), pp. 489-555.

Miller, E.J., and Rice, A.K. (1967) *Systems of Organization: The Control of Task and Sentient Boundaries.* London, Tavistock Publications.

Morgan, G. (2006). *Images of organization.* London: Sage Publications.

Morris, B. (1941). 'The art-process and the aesthetic fact in Whitehead's philosophy', in Schilpp, P A., ed. *The Philosophy of A. N. Whitehead* (The Library of Living Philosophers). New York: Tudor.

Mukerji, C. (2015). 'The material turn', in Scott. R.A. and Kosslyn. S.M., (eds.) *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*, [Online]. Available at: http://onlinelibrary.wiley.com/book/10.1002/9781118900772 (Accessed: 02/08/15).

Mumford, E. (2003). *Redesigning Human Systems*, Pennsylvania: InfoSci, Idea Group Inc.

Munro, E. (2011). *The Munro Review of Child Protection: Final Report - A child-centred system.* London: Department for Education.

N

National Information Board (2014). *Personalised Health and Care 2020. Using Data and Technology to Transform Outcomes for Patients and Citizens: A Framework for Action*, London: National Information Board

Naughton, A. (2015). 'We are ignoring the new machine age at our peril', *The Guardian* 17 May [Online] Available at: https://www.theguardian.com/commentisfree/2015/may/17/we-ignore-new-machine-age-at-our-peril-google-cars (Accessed: 04/06/2015).

Needleman, J. (1990). *Lost Christianity: a journey of rediscovery to the centre of Christian experience*, Shaftesbury: Element Books.

Neuberger, J. (2013) *Liverpool Care Pathway review panel press release*. London: Department of Health. Available at: https://www.gov.uk/government/publications/review-of-liverpool-care-pathway-for-dying-patients (Accessed: 10/08/2013)

Neumann, J. E. (2005). 'Kurt Lewin at the Tavistock Institute', *Educational Action Research*, 13(1), pp.119-136.

Neumann, J. E. (2015). 'Kurt Lewin – 'Field Theory Rule', The Tavistock Institute, [Online] Available at: http://www.tavinstitute.org/projects/field-theory-rule/ (Accessed: 04/02/2016).

NHS Employers. (2013). *Agile working guide published*, 27 September [Online]. Available at: http://www.nhsemployers.org/news/2013/09/agile-working-guide-published. (Accessed: 20/10/2016).

NHS England. (2014). *The Five Year Forward View*, London: NHS

NHS England. (2015). *The Forward View Into Action: Paper-free at the Point of Care - Preparing to Develop Local Digital Roadmaps*, London: NHS

Nimmo, R. (2011) 'Actor-network theory and methodology: social research in a more-than-human world', *Methodological Innovations Online*, 6(3) pp.108-119.

O

Obholzer, A. (1994). 'Afterword', in Obholzer, A. and Roberts V.Z. (eds.) *The unconscious at work: individual and organizational stress in the human services*. London: Brunner-Routledge. pp.206-210.

Obholzer, A. (1999). 'Managing the unconscious at work', in French, R. and Vince, R. (eds.), *Group relations, management and organisation*. Oxford: Oxford University Press, 1999, pp.87–97.

Obholzer, A. and Roberts V.Z. (eds.) (1994). *The unconscious at work: individual and organizational stress in the human services*. London: Brunner-Routledge.

Orlikowski WJ (2007). 'Sociomaterial practices: exploring technology at work', *Organization Studies* 28 (09) pp.1435-1448.

Orlikowski, W. (2010). 'The sociomateriality of organisational life: considering technology in management research', *Cambridge Journal of Economics*, 34, pp. 125–141

Orlikowski, W. J., and Scott, S. V. (2008). 'Sociomateriality: challenging the separation of technology, work and organization', *The Academy of Management Annals* (2)1, pp. 433-474.

Orlikowski, W.J. (1992). 'The duality of technology: rethinking the concept of technology in organizations', *Organization Science*, 3(3), Focused Issue: Management of Technology, pp. 398-427

Orlikowski, W.J. and Barley, S.R. (2001). 'Technology and institutions: what can research on information technology and research on organizations learn from each other'. *MIS Quarterly*, 25(2), pp.145-165.

O'Shaughnessy, E. (1981). 'A commemorative essay on W.R. Bion's theory of thinking', *Journal of Child Psychotherapy*, 7 (2), pp. 181-192

P

Palmer, B. (2002). 'The Tavistock paradigm: inside, outside and beyond' in Hinshelwood, R.D. & Chiesa, M. (eds.) *Organizations, anxieties and defences: towards a psychoanalytic social psychology*. London: Whurr Publishers Ltd. pp. 158-182.

Palmer, S and 40 others. (2016) Screen-based lifestyle harms children's health, Letters, *The Guardian* 25 December [Online] Available at: https://www.theguardian.com/education/2016/dec/25/screen-based-lifestyle-harms-health-of-children (Accessed: 02/02/2017)

Peckover, S., Hall, C. and White, S. (2009). 'From policy to practice: the implementation and negotiation of technologies in everyday child welfare', *Children & Society,* 23: pp.136–148.

Peltu, M., Eason, K. and Clegg, C., 2008. 'How a sociotechnical approach can help NPfIT deliver better NHS patient care', *Report to the British Computer Society Socio-Technical Group, May 2008.*

Perkins, C. (2013). 'How David Hockney became the world's foremost iPad painter', *Wired*, 18 November [Online]. Available at: https://www.wired.com/2013/11/hockney/ (Accessed: 07/03/2015).

Pinch, T.J. and Bijker, W.E. (1987). 'The social construction of facts and artefacts: or how the sociology of science and sociology of technology might benefit each other', in Bijker, W.E., Hughes, P. and Pinch T. (eds.) *The Social Construction of Technological Systems*, Cambridge MA: MIT Press, pp.159-187.

Piotti, B., Chilundo, B. and Sahay, S. (2006). 'An institutional perspective on health sector reforms and the process of reframing health information systems', *The Journal of Applied Behavioral Science*, 42 (1), pp. 91 - 109

Power, M. (1999). *The audit society: Rituals of verification.* Oxford: Oxford University Press.

Prensky, M. (2001). 'Digital natives, digital immigrants', *On the Horizon*, 9 (5), pp. 1–6.

R

Reeves, N. (2015). 'The use of telephone and Skype in psychotherapy: reflections on an attachment therapist', in Cundy, L. (ed.) *Love in the Age of the Internet: Attachment in the Digital Era*, London: Karnac Books Ltd. pp.125-152.

REST & WOA Wiki. (2017). *424 - Failed Dependency*, [Online]. Available at: https://restpatterns.mindtouch.us/HTTP_Status_Codes/424_-_Failed_Dependency (Accessed: 21/05/2017).

Riddell, J. (2015). 'Desire and memory: the impact of internet pornography on the couple relationship, and processing of early trauma in therapy', in Cundy, L. (ed.) *Love in the Age of the Internet: Attachment in the Digital Era*, London: Karnac Books Ltd. pp. 81-98.

Riessman, C.K. (1993). *Narrative analysis*, Qualitative research methods series, 30, London: Sage Publications.

Rizq, R. (2011). 'IAPT, anxiety and envy: a psychoanalytic view of NHS primary care mental health services today', *British Journal of Psychotherapy*, 27(1), pp.37-55

Rizq, R. (2012a). The ghost in the machine: IAPT and organizational melancholia, *British Journal of Psychotherapy*, 28(3) pp.319–335

Rizq, R. (2012b). ‘The perversion of care: psychological therapies in a time of IAPT’, *Psychodynamic Practice*, 18(1), pp.7-25.

Robbins, M. (2014). ‘Mind Change: Susan Greenfield has a big idea, but what is it?’, *The Guardian* 3 October [Online], Available at: https://www.theguardian.com/science/the-lay-scientist/2014/oct/03/mind-change-susan-greenfield-has-a-big-idea-but-what-is-it (Accessed: 23/10/2015).

Roberts V.Z. (1994). ‘The organization of work: contributions form opens systems theory’, in Obholzer, A. and Roberts V.Z. (eds.) *The unconscious at work: individual and organizational stress in the human services*. London: Brunner-Routledge. pp.28-38.

Robertson, A. (2015). 'Angry Birds 2' arrives 6 years and 3 billion downloads after first game’, *Forbes*, 18 November [Online]. Available at: https://www.forbes.com/sites/andyrobertson/2015/07/16/angry-birds-2/#3e72895c702d (Accessed: 25/11/2015).

Rolfe, G. (2006). ‘Judgements without rules: towards a postmodern ironist concept of research validity’, *Nursing Inquiry*, 13 (1) pp. 7-15.

Rustin, M. (2002) *Mirror to Nature: Psychoanalysis and Society*. Karnac Books.

Rustin, M. (2013). ‘Furthering the psychoanalytic theory and technique of Melanie Klein: Esther Bick’, *Melanie Klein Trust* [Online]. Available at: http://www.melanie-klein-trust.org.uk/Bick (Accessed: 07/08/2017).

Ryan, G.W. and Bernard, H.R. (2003). ‘Techniques to identify themes’, *Field Methods*, 15(1), pp.85–109

S

Sandelowski, M. (2002). Reembodying qualitative inquiry, *Qualitative Health Research*, 12(1), pp. 104-15.

Savage, J. (1997). ‘Gestures of resistance: the nurse's body in contested space’, *Nursing Inquiry*, 4(4), pp.237–245.

Scharff, J.S. (ed.) (2015). *Psychoanalysis Online 2: Impact of Technology on Development, Training, and Therapy (The Library of Technology and Mental Health),* London: Karnac Books Ltd.

Schein, E. (1988) ‘What is process consultation?’, in P*rocess consultation. Vol 1. Its role in organisational development.* Reading, MA: Addison-Wesley. pp.3-12.

Schwab, K. (2016). *The Fourth Industrial Revolution*, Geneva: World Economic Forum.

Segal, H. (1957). 'Notes on symbol formation', *International Journal of Psychoanalysis,* 38 pp.391–405

Sehgal Cuthbert, A. (2012). ‘Why there’s a crisis of compassion’*, Spiked*, 1 March 2012. Available at: http://www.spiked-online.com/index.php/site/article/12176/ (Accessed: 14/01/2013).

Sievers, B. (2007) ‘Pictures from below the surface of the university: The social photo-matrix as a method for understanding organizations in depth’, in

Reynolds, M. and Vince, R., (eds.) *Handbook of Experiential Learning and Management Education.* Oxford: Oxford University Press, pp. 241–257.

Sievers, B. (2008) ‘‘Perhaps it is the role of pictures to get in contact with the uncanny’: The social photo-matrix as a method to promote the understanding of the unconscious in organizations’, *Organisational and Social Dynamics.* 8 (2), pp. 234–254.

Sievers, B. (2013) ‘Thinking organisations through photographs: the social photo-matrix as a method for understanding organisations in depth’, in Long, S., (ed.) *Socioanalytic Methods: Discovering the Hidden in Organisations and Social Systems*. London: Karnac, pp. 129-151.

Simpson, P. and French, R. (2006). ‘Negative capability and the capacity to think in the present moment: Some implications for leadership practice’, *Leadership*, 2, pp.245-255.

Slutskaya, N., Simpson, A. and Hughes, J. (2012). ‘Lessons from photoelicitation: encouraging working men to speak’, Q*ualitative Research in Organizations and Management: An International Journal*, 7(1), pp.16 - 33.

Smith, B.D. (2010). ‘Service technologies and the conditions of work in child welfare’, in Hasenfeld, Y. (ed.) *Human Services as Complex Organizations*, 2nd edn. London: Sage Publications. pp. 253-268

Sood, H.S. and McNeil, K. (2017). ‘How is health information technology changing the way we deliver NHS hospital care?’, *Future Healthcare Journal*, 4(2), pp. 117–20.

Stapley, L.F. (2006). *Individuals, Groups and Organizations Beneath the Surface: An Introduction*, London, Karnac Books Ltd.

Stein, M. (2000). ‘After Eden: envy and the defences against anxiety paradigm’, *Human Relations*, 53(2), pp. 193-211

Steiner, J. (1987). 'The interplay between pathological organisations and the paranoid-schizoid and depressive positions', *International Journal of Psychoanalysis*, 68, pp.69-80. Reprinted in Spillius, E. Bott (1988) Melanie Klein Today 1, Mainly Theory. London: Routledge.

Steyaert, C., Marti, L. and Michels, C. (2012). ‘Multiplicity and reflexivity in organizational research: towards a performative approach in the visual’, Q*ualitative Research in Organizations and Management: An International Journal*, 7(1). pp. 34-53

Susskind, D. (2015). ‘Robot doctors and lawyers? It’s a change we should embrace’, *The Guardian* 2 November [Online]. Available at: https://www.theguardian.com/commentisfree/2015/nov/02/robot-doctors-lawyers-professions-embrace-change-machines (Accessed: 10/11/2015).

Susskind, R. and Susskind. D. (2015). *The Future of the Professions: How Technology Will Transform the Work of Human Experts*. Oxford: Oxford University Press

T

Tchelebi, N.R. (2013). *'Us' Versus 'Them': exploring the dynamics of projections in organisations*. Unpublished PhD thesis. University of the West of England.

The Flaming Lips. (2002a). 'Yoshimi Battles The Pink Robots Pt. 1', *Yoshimi Battles The Pink Robots* [CD, Album]. New York: Warner Bros. Records

The Flaming Lips. (2002b). 'Do You Realize??', *Yoshimi Battles The Pink Robots* [CD, Album]. New York: Warner Bros. Records

The Wrong Trousers. (1993). Directed by Nick Park [Film]. Bristol: Aardman Animations.

Trist, E. and Bamforth, K. (1951). 'Some social and psychological consequences of the longwall method of coal getting', *Human Relations*, 4, pp. 3-38.

Tucker, S. (2015). 'Still not good enough! Must try harder: an exploration of social defences in schools', in Armstrong, D. and Rustin, M. (eds.) *Social Defences Against Anxiety: Explorations in a Paradigm*, London: Karnac Books. pp. 256-266.

Tucker, S. (2016). 'The missing link – putting the organization back in working relationship', *Journal of Social Work Practice*, 30(3), pp.267–281,

Turkle, S. (1984). *The Second Self: Computers and the Human Spirit*, New York: Simon & Schuster.

Turkle, S. (1995) *Life on the Screen: Identity in the Age of the Internet*, New York: Simon & Schuster.

Turkle, S. (2011). *Alone Together: Why We Expect More from Technology and Less from Each Other*, New York: Basic Books.

Turkle, S. (2015). *Reclaiming Conversation: The Power of Talk in a Digital Age*, New York: Penguin Press.

V

Vansina, L. (ed.) *Humanness in Organisations: A Psychodynamic Contribution*. London: Karnac Books Ltd.

Villagers. (2013). 'Nothing arrived', {*Awayland*} [CD, Album]. London: Domino Recording Co. Ltd.

von Bertalanffy, L. (1968). *General System theory: Foundations, Development, Applications*, New York: George Braziller.

W

Wachter, R. M. (2016). *Making IT Work: Harnessing the Power of Health Information Technology to Improve Care in England.* Report of the National Advisory Group on Health Information Technology in England. London: Crown Copyright.

Waddell, M. (1998). *Inside Lives: Psychoanalysis and the Growth of the Personality,* (The Tavistock Clinic Series), London: Karnac books Ltd.

Waggett, N. (2012). 'Ghosts in the care home: the nature of relationships in a home for people with learning disabilities', *Journal of Social Work Practice:*

Psychotherapeutic Approaches in Health, Welfare and the Community, 26(4), pp. 443-457.

Wajcman, J. (2010) Feminist theories of technology, *Cambridge Journal of Economics,* 34, pp. 143–152

Walker, L. (2015). 'Stephen Hawking warns artificial intelligence could end humanity', *Newsweek* 14 May [Online]. Available at: http://www.newsweek.com/stephen-hawking-warns-artificial-intelligence-could-end-humanity-332082 (Accessed: 23/05/2015).

Warren, S. (2012) 'Psychoanalysis, collective viewing and the "social photo-matrix" in organizational research', *Qualitative Research in Organizations and Management: An International Journal*, 7 (1), pp.86-104.

Wastell D, White S, Broadhurst K, Peckover S and Pithouse A. (2010). 'Children's services in the iron cage of performance management: street-level bureaucracy and the spectre of Švejkism', *International Journal of Social Welfare,* 19, pp. 310–320

Wastell, D. and White, S. (2014) 'Making sense of complex electronic records: socio-technical design in social care', *Applied Ergonomics* 45, pp. 143-149.

Waterson, P. (2014). 'Health information technology and sociotechnical systems: A progress report on recent developments within the UK National Health Service (NHS)', *Applied Ergonomics,* 45, pp.150-161

Western, S. (2009). *Cyborgs and Entanglements: Locating Ourselves in a Strange Land*. Paper presented to the 26th Annual Meeting of the International Society for the Psychoanalytic Study of Organizations, Toledo, Spain, 6/22/2009

White, S., Wastell, D., Broadhurst, K. and Hall, C., (2010). 'When policy o'erleaps itself: the 'tragic tale' of the integrated children's system', *Critical Social Policy* 30(3), pp.405-429.

Whitehead, A.N. (1929). *Process and reality: an essay in cosmology. Gifford Lectures delivered in the University of Edinburgh during the session 1927–1928*, Cambridge: Cambridge University Press.

Whitehead, A.N. (1938). *Modes of thought*, New York: The Free Press.

Wired Magazine. (2016). 'Everything you need to know about the WIRED World in 2016', *Wired Magazine* 26 Jan [Online] Available at: http://www.wired.co.uk /article/wired-world-in-2016-magazine (Accessed: 01/02/2016)

Wolpert, M. (2014). 'Uses and abuses of patient reported outcome measures (PROMs): potential iatrogenic impact of PROMs implementation and how it can be mitigated', *Administration and Policy in Mental Health and Mental Health Services Research*, 41(2), pp. 141-145.

Wood, M. (2005). 'The fallacy of misplaced leadership', *Journal of Management Studies*, 42:6 pp.1101-1121.

Woolgar, S. (1991). 'The turn to technology in social studies of science', *Science, Technology & Human Values*, 16(1), pp.20-50.

Y

Young, R.M. (1994). *Mental Space*, London: Process Press Ltd. Available at: http://human-nature.com/rmyoung/papers/paper55.html (*No pagination*) (Accessed: 14/01/2013).

Z

Zammuto, R.F., Griffith, T.L., Majchrzak, A., Dougherty, D.J. and Faraj, S. (2007) 'Information technology and the changing fabric of organization', *Organization Science* 18(5):749-762.

Zaretsky, E. (2002). 'Trauma and dereification: September 11 and the problem of ontological security', *Constellations.* 9(1), pp. 98–105.

Zuboff, S. (1988). *In the Age of the Smart Machine*, New York: Basic Books

Appendix A: Research Ethics Approval Letter[45]

EXTERNAL AND STRATEGIC DEVELOPMENT SERVICES
uel.ac.uk/qa
Quality Assurance and Enhancement

UEL University of East London

26 March 2015

Dear Nick

Project Title:	**An investigation of organizational technologies as mediators between the abstract/conceptual and concrete/material aspects of organizing in the human services.**
Researcher(s):	**Dr Janet Shaw**
Principal Investigator:	**Nick Waggett**
Reference Number:	**UREC_1415_56**

I am writing to confirm the outcome of your application to the University Research Ethics Committee (UREC), which was considered at the meeting on **Wednesday 18th March 2015**.

The decision made by members of the Committee is **Approved**. The Committee's response is based on the protocol described in the application form and supporting documentation. Your study has received ethical approval from the date of this letter.

Should any significant adverse events or considerable changes occur in connection with this research project that may consequently alter relevant ethical considerations, this must be reported immediately to UREC. Subsequent to such changes an Ethical Amendment Form should be completed and submitted to UREC.

Approved Research Site

I am pleased to confirm that the approval of the proposed research applies to the following research site.

Research Site	Principal Investigator / Local Collaborator
Northern School of Child and Adolescent Psychotherapy (NSCAP), Leeds	Dr Janet Shaw

Approved Documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
UREC application form	1.0	18 February 2015
Correspondence regarding NHS R&D approval	1.0	18 February 2015

Docklands Campus, University Way, London E16 2RD
Tel: +44 (0)20 8223 3322 Fax: +44 (0)20 8223 3394 MINICOM 020 8223 2853
Email: r.carter@uel.ac.uk

[45] The ethics approval letter and the supporting documents in the following appendices bear the original title of the study which was later changed because it was felt to represent only one aspect of the research. The wider scope of the research undertaken and the conclusions drawn from it are better described in the current title.

Research protocol	1.0	18 February 2015
Participant information sheet	1.0	18 February 2015
Participant information	1.0	18 February 2015
Consent form	1.0	18 February 2015
Outline of focus group method	1.0	18 February 2015
Tavistock fieldwork risk assessment audit	1.0	18 February 2015

Approval is given on the understanding that the UEL Code of Good Practice in Research is adhered to.

Please note, it is your responsibility to retain this letter for your records.

With the Committee's best wishes for the success of this project.

Yours sincerely,

Rosalind Eccles
University Research Ethics Committee (UREC)
UREC Servicing Officer
Email: researchethics@uel.ac.uk

Appendix B: Participant Invitation Letter

Participant Invitation (version 2.0) 27th August 2015

To be sent as an email to contacts of NSCAP working with children and young people.

Dear colleague

You are invited to take part in a research study

I am seeking volunteers to take part in two focus groups that will contribute towards an investigation of the role of technologies and materials in the organization of services for children, young people and families. I am writing to you as someone who has had contact with NSCAP and may be interested in supporting this research. The study is being undertaken in fulfilment the Professional Doctorate in Consultation and the Organisation at the Tavistock and Portman NHS Foundation Trust and has been approved by the University of East London.

Participants are required for two focus groups of practitioners from a range of services in contact with children and young people, and their families, with emotional, social and behavioural difficulties. Each group will be held at NSCAP in Leeds with six to eight people and will be conducted using a method called the Social Photo-Matrix. Participants will be asked to provide a photograph representing 'technology' in their organization which will be anonymized and used as the basis for group discussion. The hope is that the focus groups will be interesting and stimulating for members and provide an opportunity to reflect on aspects of their organization and work setting, as well as contributing to the management and organization of services for children and young people.

If you might be interested in taking part in this study please email me via nick.waggett@nhs.net or call 0113 8558750 and I will then send you a detailed Participant Information Sheet and Consent Form that you can consider before agreeing to be a participant.

I am happy to discuss the study if you require additional information.

Nick Waggett
Operational Director
NSCAP
Bevan House,
34-36 Springwell Road
LEEDS LS12 1AW

Tel: 0113 3058750
Email: nick.waggett@nhs.net
Web: www.nscap.org.uk

Appendix C: Participant Information Sheet

Participant Information Sheet (version 3.0) 27/08/2015

An investigation of organizational technologies in the human services.

Case study in services for children, young people and families

You are invited to take part in a research study

- We are seeking volunteers to take part in focus groups that will contribute towards an investigation of the role of technologies and materials in the organization of services for children, young people and families.
- Before you decide to take part it is important for you to understand why the research is being done and what it will involve.
- Please take time to read the following information carefully.
- Please contact us if there is anything that is not clear or if you would like more information.

Important things that you need to know

- You are free to decide whether or not to take part in this study and free to withdraw your consent to participate at any point in the study.
- If you decide not to take part or to withdraw it will not affect any current or future contact you have with University of East London, Tavistock and Portman NHS Foundation Trust or Northern School of Child and Adolescent Psychotherapy, whether as a student or other capacity.
- The research has received approval from the University Research Ethics Committee (UREC) and will be conducted in line with the University's Code of Practice for ethical research.
- The research has received NHS R&D approval from Leeds and York Partnership NHS Foundation Trust who are the employer of the lead researcher.

What does participation entail?

- Participants will be invited to take part in a focus group of six to eight multi-disciplinary colleagues.
- The groups will involve each participant providing a photograph representing their experience of 'technology' in their organization. These will be used anonymously as the basis for discussion.
- The groups will be audio recorded and the recording transcribed in a way that preserves the anonymity of participants through the removal of any identifying information.
- The focus groups will take place after working hours to facilitate attendance and will take place at NSCAP in Leeds.
- Participants will be provided with a form to claim for necessary travel expenses associated with attending the focus groups at NSCAP.

What next?

- If you wish to participate in this study please sign the attached consent form and return it in the enclosed envelope.
- You will then be contacted by an administrator to arrange the date and time of the focus group.

Consent to participate in a research study

The purpose of this leaflet is to provide you with the information that you need to consider in deciding whether to participate in this study.

Attached to this leaflet is a Consent Form that you will need to sign if you wish to be part of the study.

University Research Ethics Committee

If you have any queries regarding the conduct of the programme in which you are being asked to participate, please contact:

Catherine Fieulleteau
Ethics Integrity Manager,
Graduate School, EB 1.43
University of East London
Docklands Campus
London E16 2RD
Tel: 020 8223 6683
Email: researchethics@uel.ac.uk

How to contact us

If you have questions about this study please contact the lead researcher:

Nick Waggett
NSCAP, Bevan House,
34-36 Springwell Road
LEEDS LS12 1AW
Tel: 0113 3058750
Fax: 0113 244 0966
Email: nick.waggett@nhs.net

An investigation of organizational technologies in the human services.

Case study in services for children, young people and families

Further information for participants

Full project title

An investigation of organizational technologies as mediators between the abstract/conceptual and concrete/material aspects of organizing in the human services. A case study in services for children, young people and families

Aim of the investigation

The aim is to advance the theory and practice of systems psychodynamics consultancy in relation to the role and agency of technologies and materials in the organization and management of services working with complex and vulnerable client groups.

Research Methodology

The study is interested in the experience of clinicians, practitioners and managers in relation to organizational technologies, including their material presence. The methodological approach is to consider humans and technology as being entangled in practice, such that the role of each in any organizational situation is given equal attention. The research will employ a visual method known as the Social Photo-Matrix that aims to produce rich data through the use of free association to photographs provided by the participants themselves. Members of the focus groups will be a purposive sample of practitioners from services in contact with children and young people, and their families, with emotional, social and behavioural difficulties.

What will happen in the focus groups

Two focus groups of six to eight people will be conducted using the Social Photo-Matrix method. Participants will be asked to provide a photograph representing 'technology' in their organization which will be anonymized and used as the basis for free association and group discussion. The total length of each group will be two hours including time for administration, introduction and ending. The groups will be audio recorded and transcribed to preserve the anonymity of participants.

Potential benefits to participants

The hope is that the focus groups will be interesting and stimulating for members and provide an opportunity to reflect on aspects of their organization and work setting. You will meet and share discussions with colleagues from different backgrounds and agencies. The Social Photo-Matrix method has been used for organizational consultancy purposes and the researcher is an experienced group facilitator and consultant. The outcomes of the research will contribute to the management and organization of services for children and young people.

Why the research is important

Technology is playing an increased role in the management and organization of services for vulnerable people of all ages with complex needs such as mental health, learning disability, child protection, special education, social work and youth justice. The aim of this research is to produce new understanding of how technologies and materials are entangled with human systems, leading to improvements in organizational practice.

Definition of terms

A broad definition of *technology* is being used to encompass any tools, devices or practices that impact on how services are organized. In addition to information and computer technologies this might include, patient record systems, care pathways, routine outcome measures and clinical guidance.

These technologies have *material* (physical) properties such as computer data input, manuals, record forms, guidance documents which can affect the actions of professional staff.

An investigation of organizational technologies in the human services.

Case study in services for children, young people and families

Further information for participants

Risk analysis

A risk analysis has was undertaken to identify issues and actions taken to minimize them.

Potential hazards for participants

- Working together in a group may be result in exposure to aggression or harassment from fellow participants.
- Discussion of work experiences and organizations may expose you to strong feelings and possible emotional disturbance.
- You will have to attend at the NSCAP site for the groups which involves risks associated with travel.

Mitigation of potential hazards

- The research site has been chosen to minimize the risks to the researcher and participants.
- The researcher's experience as an organizational consultant will be used to minimize risks associated with the potential for participants to be disturbed emotionally by the research process.
- The groups will be facilitated to provide an emotionally containing environment that will encourage participants to reflect on their work experience in a way that is safe, controlled and well held.
- At the end of the group all participants will be given information about contacting a suitable therapist if they are personally affected and/or an organizational consultant (other than the researcher) if the experience uncovers issues about their work setting.

Confidentiality of the data

The data associated with this study will be stored in accordance with both Leeds and York NHS Foundation Trust's Information Governance and Data Protection policies and those of the University. Audio and video recordings and the transcription of these will be stored in a password protected folder on the secure NHS server. Individuals in the group will not be identified in the data or any subsequent papers. The aim is to publish the outcomes in a peer review journal which will refer only to the groups as a whole and not individuals within them. By agreeing to take part in the study participants are also giving consent for anonymised data to be used in publications. Once the study is completed all data will be destroyed securely.

Study status

This study is defined as research and is being undertaken in partial fulfillment of the requirements of the Professional Doctorate in Consultation and the Organization at the Tavistock and Portman NHS Foundation Trust/University of East London.

Appendix D: Participant Consent Form

Participant Consent Form (version 3.0) 27/08/2015

An investigation of organizational technologies in the human services.

Case study in services for children, young people and families

CONSENT FORM

Title of Project: An investigation of organizational technologies as mediators between the abstract/conceptual and concrete/material aspects of organizing in the human services.

Name of Researcher: Nick Waggett

	Please initial box
1. I confirm that I have read the information sheet dated 27/08/2015 (version 3.0) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.	☐
3. I understand that the Focus Groups will be audio recorded and the recording transcribed and anonymised. I understand that all data will be stored confidentially and destroyed securely once the study has been completed.	☐
4. I understand that by agreeing to take part in the study I am also giving consent for anonymised data, including anonymised quotes, to be used in future publications in peer review journals and conferences.	☐
5. I agree to take part in the above study.	☐

Name of Participant	Date	Signature
_____	_____	_____

Appendix E: Images from the Social Photo-Matrix

IMAGES FROM GROUP 1

Image 1

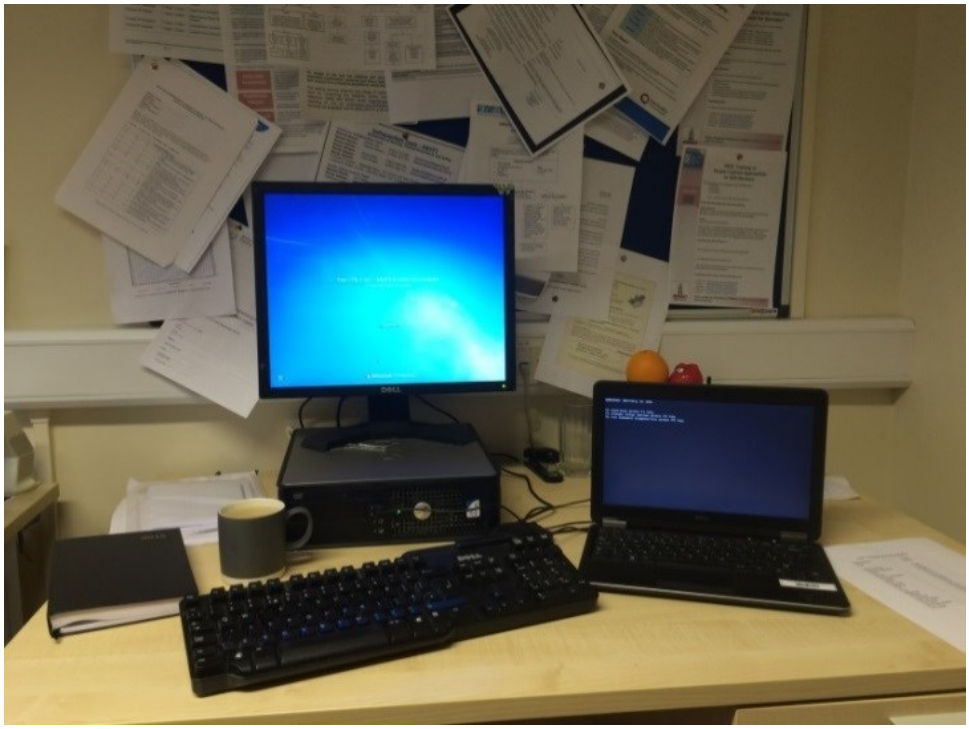


Image 2

Image 3

Image 4

Image 5

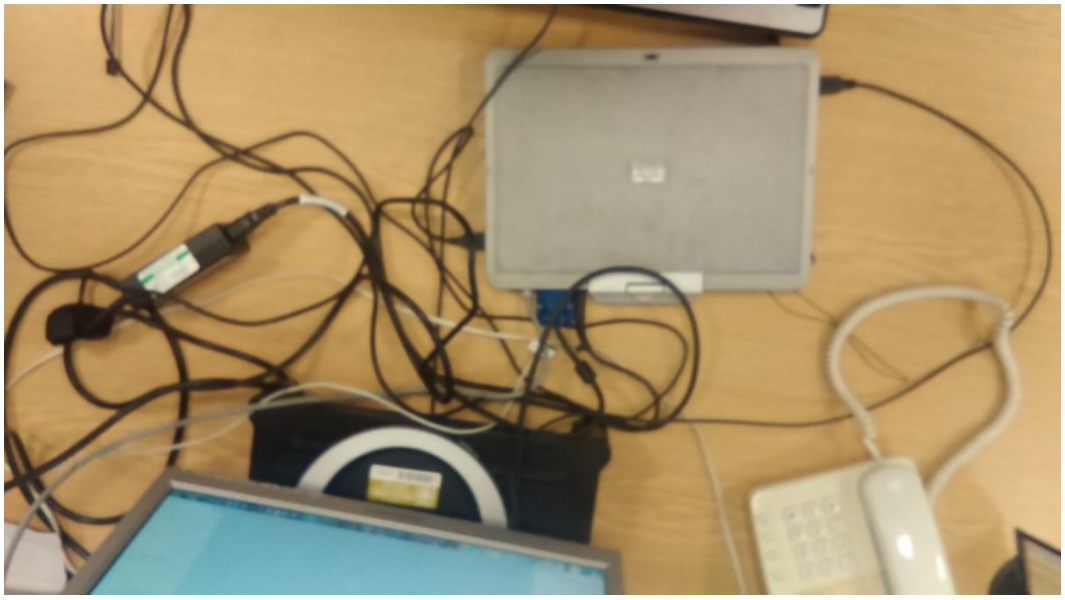


Image 6

IMAGES FROM GROUP 2

Image 7

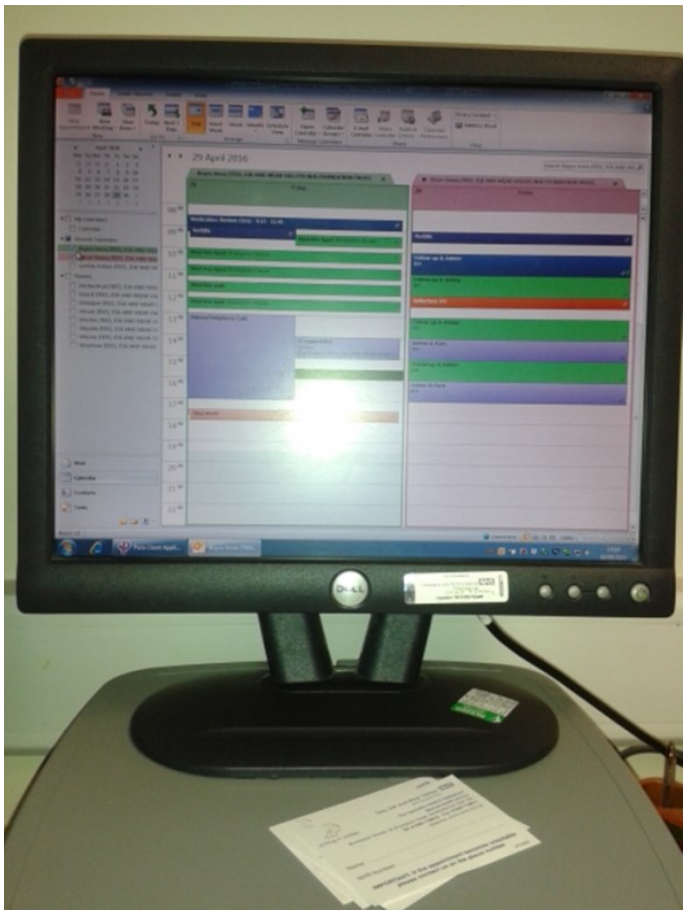


Image 8

Image 9

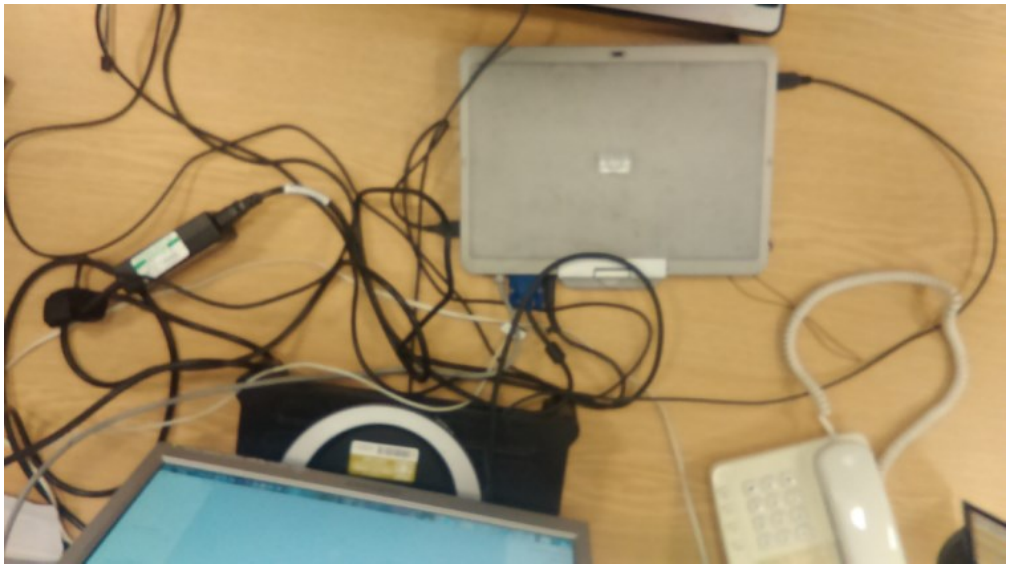
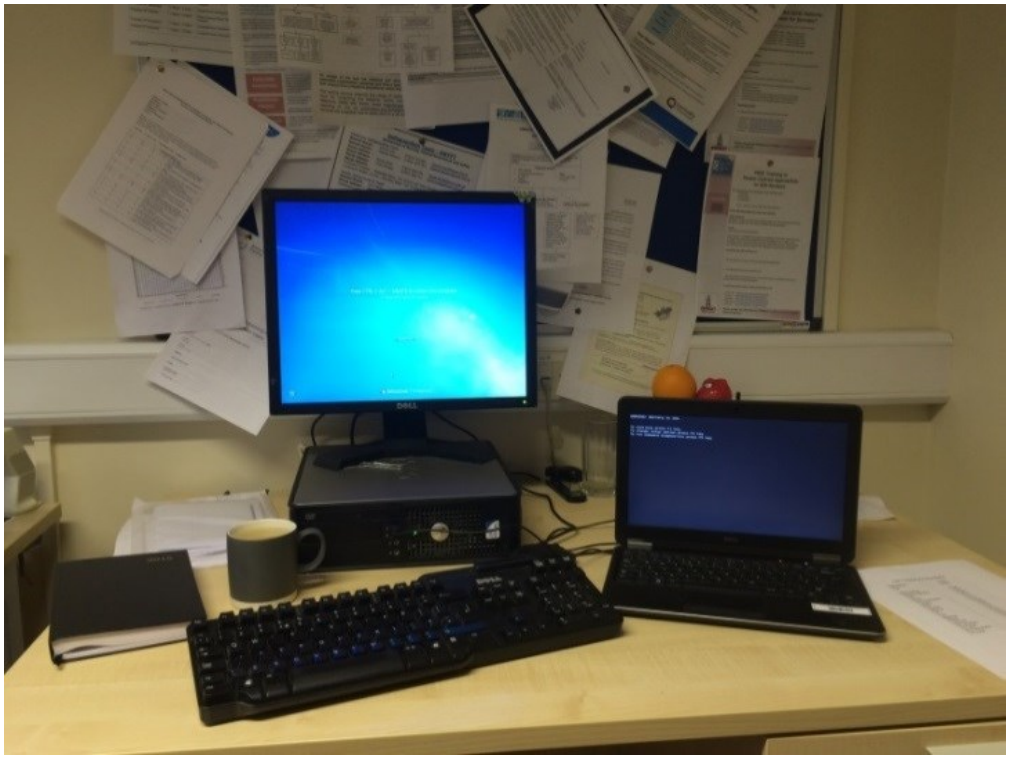


Image 10



19. Emotion - ominous, dread		
R1 It's a very sort of hubristic picture. It's a… you know? Is this a human figure? Or a god like figure? Does this give…? Great power that you hold on your hands? With a sort of Celestine light coming out? Dressed in a horrible, dark corporate suit and tie? Or is that what the sort of new vision of the future would be like? Just all plugged into each other all the time, working harder and faster and more efficiently?	15 19 15	Parallels with T's pic. ?Representing same thing. Corporate/NPM into CAMHS – efficient machines. Vision of NHS but hubristic, won't work. Efficient, lean working that isn't requisite for CAMHS. But also saviour of CAMHS if they can produce the right data (any data!) to prove value and be re-commissioned.
R1 It's a familiar scene. Fills me with anxiety, actually. Or a little bit of anxiety. I'm not sure that is about the ominous nature of the… of all the paper hanging down over it. They just like sort of directions and commands and…	5 19 11	Familiar but … anxiety
R1 I mean, it's isolated, isn't it? It's kind of disconnected from the body. You know? It's a kind of mind on its own, isn't it? And a brain on its own. I think it's quite a close up of the brain as well. I didn't realise… I haven't looked at a close up of a brain for a long time how kind of slightly unusual it looks and Davros-like or something like that. It's kind of a slightly unsettling physical… visual appearance to it. And there it's just there in isolation. So it's sort of slightly disconnected and… rather than mind to mind or mind with the body and body with mind and…	8 19 8 7	Mind without body is isolated, not connected. Needs body to connect in same way as IT system needs keyboard to connect. Control/Daleks. cf ominous above. cf ugly computer so, mind/body on own doesn't connect or 'do' anything relational without body to connect it to the world/others. Same as computer –both brain and computer can be ugly and disconnected, fragile, not working and need to be maintained and need to be materially translated to work.
R2 Reminds me a bit of a life support system. I am just thinking that when our systems go down, I feel completely helpless. I can't access the notes. I can't write emails. I can't correspond with colleagues. So, on the one hand although having all those… being able to access electronic records on patients is much better in terms of ease, and I suppose one definition of safety, but it doesn't feel comfortable that one feels so helpless when you can't do it.	10 11/19 21 22	ie artificial means of keeping someone alive. Shows level of reliance/dependency. Reliant on technology for 'life' including knowledge and connections and language – makes them feel helpless and dependent like a child. Loss of human agency – vulnerable to technology breakdown – but technology is better in some ways it has replaced human methods but is equally vulnerable and humans no longer have back-up system. Cf Safeguarding training and IG = Safeguarding for computers.
R I feel much more affected by that picture than I did the previous one.	19	R2 murmurs in agreement